DRUG USE AMONG UTAH STUDENTS, 1997

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Chapter 1

OVERVIEW

From 1984 to 1997, the percentage of Utah students who smoked cigarettes increased from ten percent to fifteen percent. Past month use of marijuana increased from six percent in 1989 to ten percent in 1997. Illegal use of sedatives increased while student use of smokeless tobacco, amphetamines, and inhalants decreased somewhat.

The prevalence of alcohol, cigarette, marijuana, and amphetamine use was substantially less in Utah than in the United States as a whole. For other substances, the differences between Utah and the rest of the United States were small.

These data were obtained from a survey of 10,000 Utah students in grades 7-12 conducted between February and June of 1997. A questionnaire was administered to a probability sample of students from thirty-eight of Utah's forty school districts.

PREVALENCE

Figure 1.1 shows the current use of the four most commonly used drugs among Utah students in grades 7-12. During the past month, 18.8 percent of the students consumed alcohol, 14.9 percent smoked cigarettes, 9.8 percent used marijuana, and 5.4 percent admitted to using a sedative illegally.

Use of inhalants, amphetamines, hallucinogens, and cocaine is shown in Figure 1.2. During the past month, almost four percent of the students inhaled a substance to get high, 2.5 percent took an amphetamine illegally, 3.0 percent used a hallucinogen, and 1.5

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Figure 1.1
Past Month Substance Use

Percent of Utah Students in Grades 7-12 Who Used Alcohol,
Cigarettes, Marijuana, or Sedatives During Past Month, 1997

Substance	Percent
Alcohol	18.8
Cigarettes	14.9
Marijuana	9.8
Sedatives	5.4
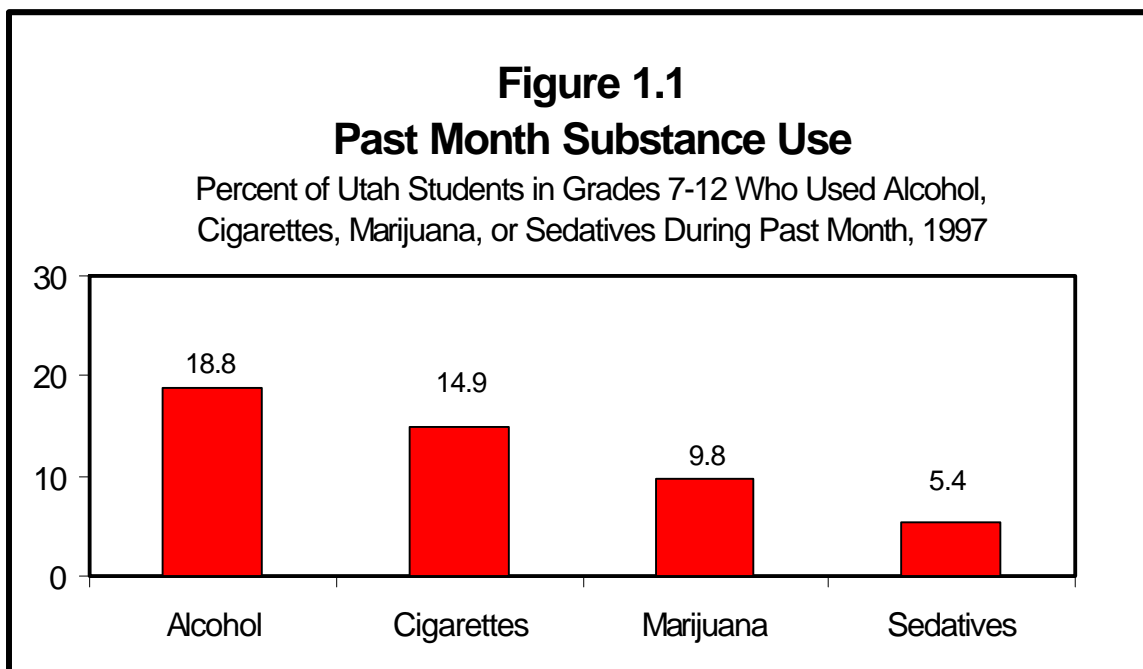
percent used

cocaine.

Figure 1.2
Past Month Substance Use

Percent of Utah Students in Grades 7-12 Who Used Inhalants, Amphetamines, Hallucinogens, or Cocaine During Past Month, 1997

3.9	2.5	3.0	1.5
Inhalants	Amphetamines	Hallucinogens	Cocaine
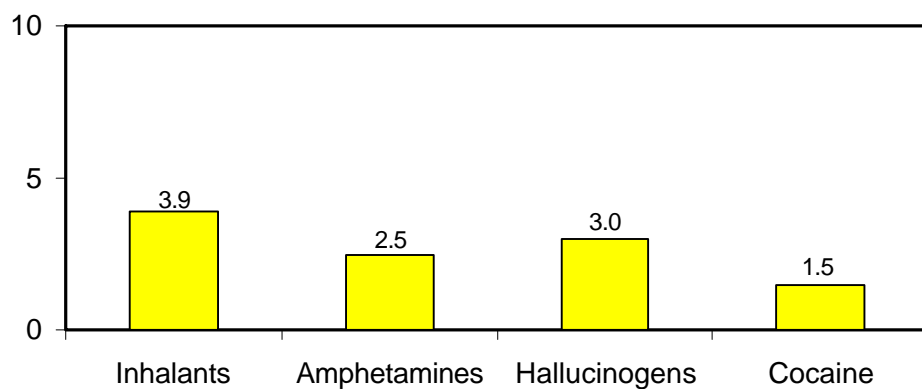
TANCE USE

Alcohol use in the past thirty days declined from 24.5 percent in 1984 to 18.8 percent in 1997 (See Figure 1.3). From 1994 to 1997 there was no significant change in student alcohol use.

Figure 1.3
Change in Alcohol Use
Percent of Utah Students in Grades 7-12 Who
Used Alcohol During Past Month, 1984 -1997

Year	Percent
1984	24.5
1989	21.8
1994	18.6
1997	18.8
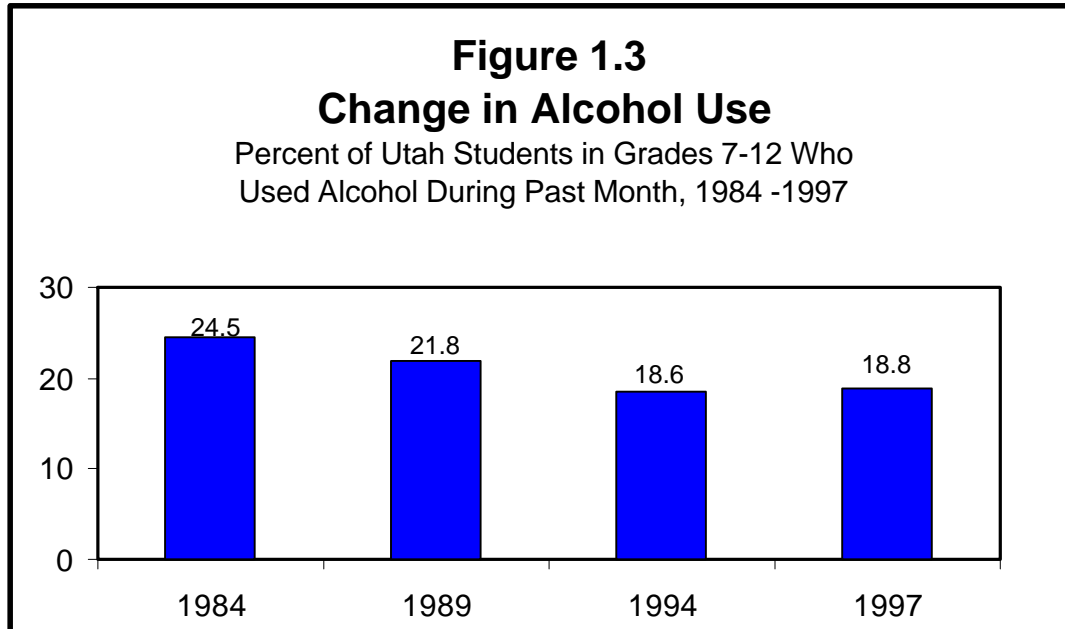
Cigarette use, on the other hand, increased steadily from 1984 to 1997, as shown in Figure 1.4. In 1984, 9.6 percent of the students smoked cigarettes during the past month compared to 14.9 percent in 1997, a statistically significant increase. The percentage of students who used smokeless tobacco during the past month decreased slightly from 5.3 percent in 1994 to 3.8 percent in 1997.

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Figure 1.4

Change in Cigarette Use

Percent of Utah Students in Grades 7-12 Who Smoked
Cigarettes During Past Month: 1984 -1997

Year	Percent
1984	9.6
1989	10.5
1994	12.4
1997	14.9
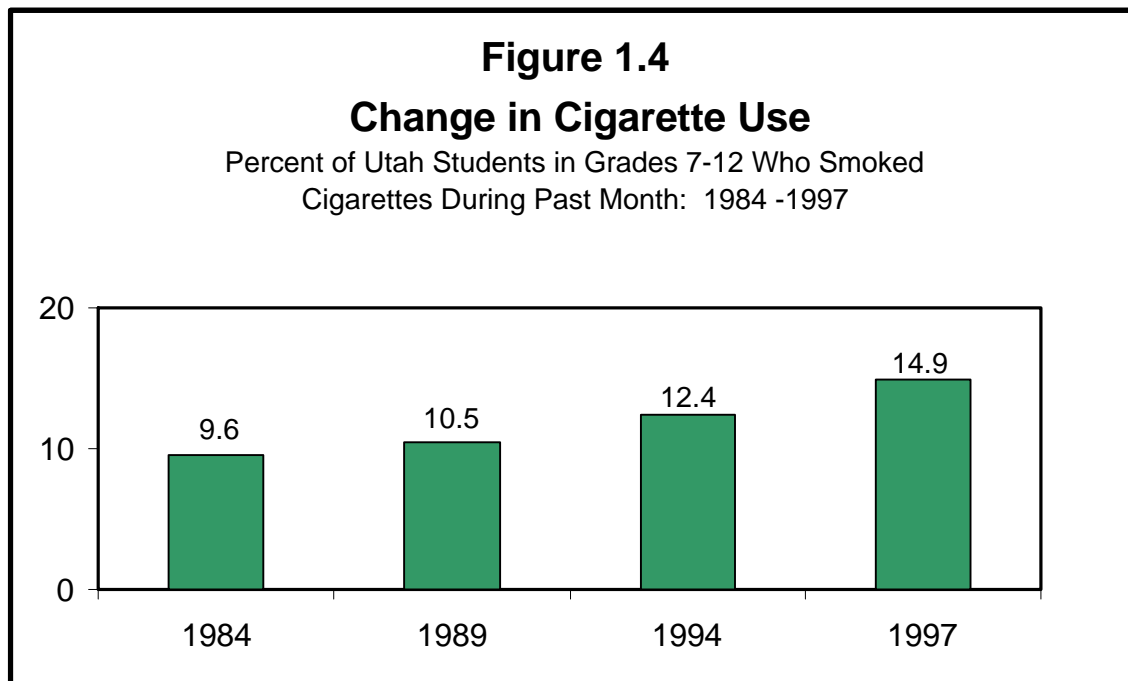
The proportion of 7-12 graders who had <u>ever used</u> marijuana increased from 14.4 percent in 1994 to 19.5 percent in 1997. Past month use of marijuana increased from 7.9 percent in 1994 and to 9.8 percent in 1997 (See Figure 1.5). Illegal use of amphetamines decreased from 5.0 percent in 1994 to 2.5 percent in 1997, a significant decrease (See Figure 1.6).

Figure 1.5

Change in Marijuana Use

Percent of Utah Students in Grades 7-12 Who Used
Marijuana During Past Month, 1984 - 1997

Year	Percent
1984	11.8
1989	6.1
1994	7.9
1997	9.8
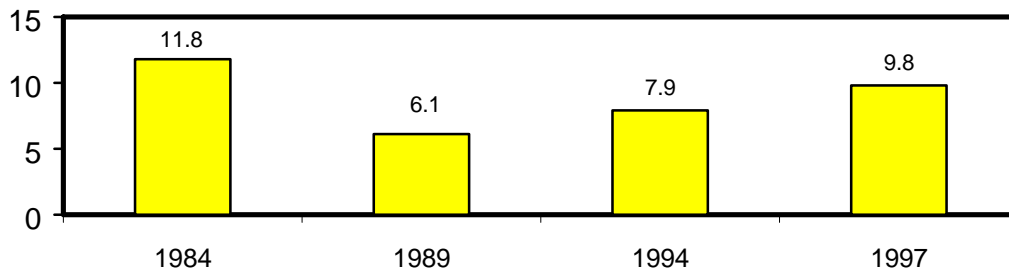
Figure 1.6

Change in Amphetamine Use

Percent of Utah Students in Grades 7-12 Who Used
Amphetamines During Past Month, 1984 -1997

Year	Percent
1984	6.4
1989	3.9
1994	5.0
1997	2.5
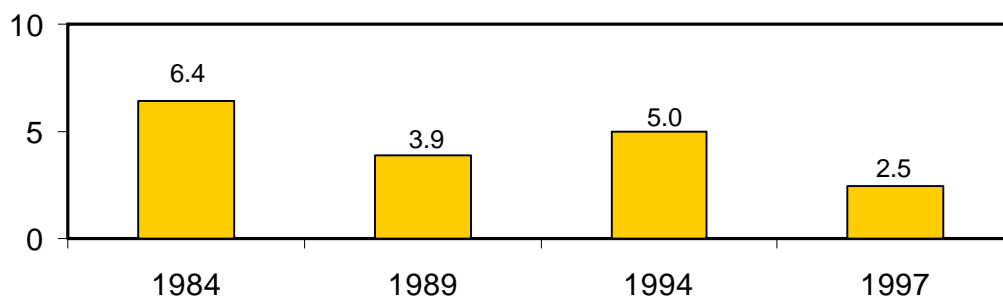
Students were asked about their use of sedatives without a doctor's prescription. The question mentioned that sedatives included tranquilizers such as valium or xanax, barbiturates, or sleeping pills. The proportion of students who had used sedatives illegally increased from 3.7 percent in 1994 to 5.4 percent in 1997, a statistically significant increase (See Figure 1.7).

Figure 1.7
Change in Sedative Use
Percent of Utah Students in Grades 7-12 Who Used
Sedatives Illegally During Past Month, 1984 -1997

Year	Percent
1984	5.4
1989	2.9
1994	3.7
1997	5.4
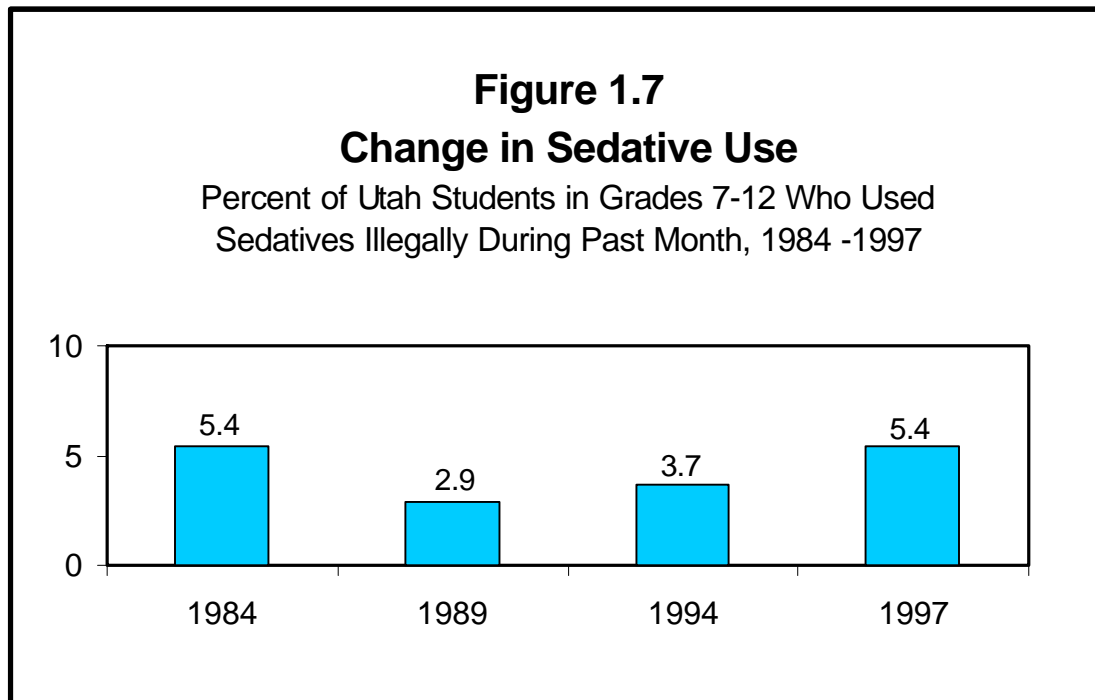
From 1994 to 1997, the proportion of students who used cocaine, heroin, inhalants, or hallucinogens changed only slightly. A detailed comparison of drug use among Utah's students from 1984 to 1997 is given in Table 1.1. In summary, there were significant increases in the use of cigarettes, marijuana, and sedatives, and significant decreases in the use of alcohol, smokeless tobacco, amphetamines, and cocaine.

Table 1.1
Change in Substance Use
Percent of Utah Students in Grades 7-12 Who Used Various Substances
During Past Month: 1984 - 1997

Substance	1984	1989	1994	1997	Change**
Alcohol	24.5	21.8	18.6	18.8	0.2
Cigarettes	9.6	10.5	12.4	14.9	2.5
Smokeless Tobacco	***	***	5.3	3.8*	-1.5
Marijuana	11.8	6.1*	7.9	9.8	1.9
Amphetamines	6.4	3.9*	5.0*	2.5*	-2.5
Sedatives	5.4	2.9*	3.7	5.4*	1.7
Cocaine	3.5	1.6*	1.8	1.5	-0.3
Hallucinogens	4.0	2.7*	3.5	3.0	-0.5
Heroin	1.7	0.5*	1.0	0.9	-0.1
Inhalants	5.2	4.2	5.5*	3.9*	-1.6
Sample Size	46,665	26,789	15,790	10,496	

* Significantly different from previous time period (p < .05)
**Change from 1994 to 1997
***Separate question on smokeless tobacco was not asked in 1984 or 1989

UTAH AND UNITED STATES COMPARISONS

The prevalence of alcohol, cigarette, smokeless tobacco, and marijuana use was much lower in Utah than among comparable students in the United States. More than half of high school seniors in the U.S. consumed alcohol during the past month compared to 27 percent of Utah seniors. Thirty-seven percent of U.S. high school seniors smoked cigarettes during the past month compared to only 22 percent of Utah seniors. Twenty-four percent of U.S. seniors used marijuana during the past month compared to 13.5 percent among Utah seniors (See Figure 1.8).

Figure 1.8
U.S. and Utah Comparison
Percent of Utah and U.S. Seniors Who Used Alcohol,

Cigarettes, or Marijuana During Past Month, 1997
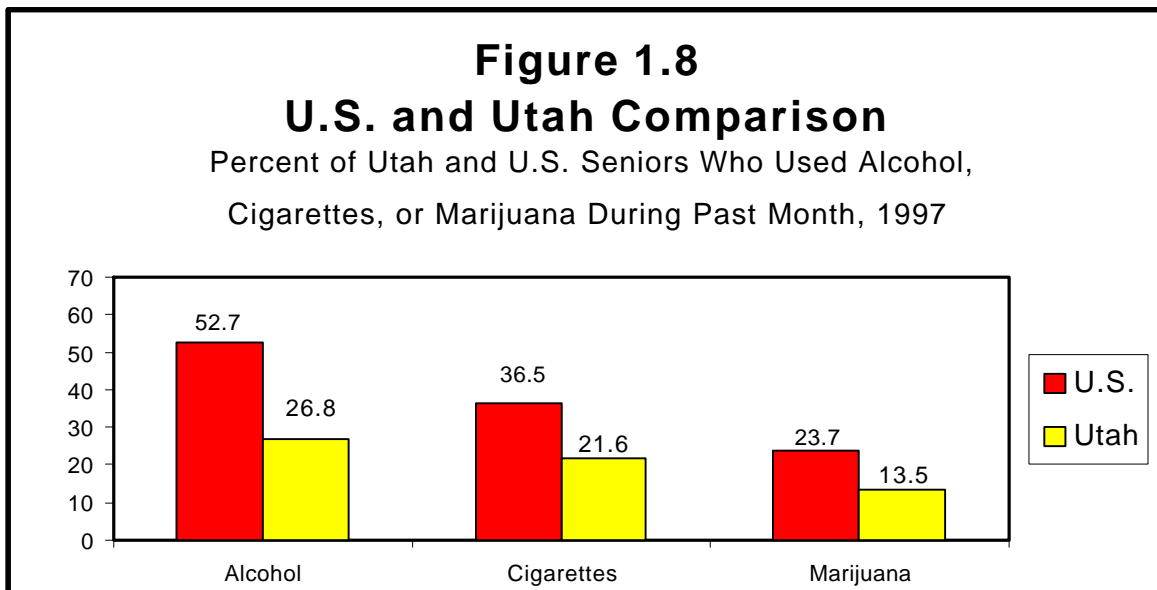
For amphetamines, sedatives, cocaine, hallucinogens, heroin, and inhalants, Utah students were similar to students in the United States. A detailed comparison of drug use among Utah and U.S. seniors is shown in Table 1.2.

Table 1.2
Comparison of U.S. and Utah
Percent of U.S. and Utah Seniors Who Used Various
Substances During Past Month: 1997

Substance	U.S. 1997	Utah 1997	Difference
Alcohol	52.7	26.8*	-25.9
Cigarettes	36.5	21.6*	-14.9
Smokeless Tobacco	9.7	7.1	-2.6
Marijuana	23.7	13.5*	-10.2
Amphetamines	4.8	3.6	-1.2
Sedatives	2.1	6.1	4.0
Cocaine	2.3	2.5	0.2
Hallucinogens	3.9	5.1	1.2
Heroin/Opiates	.05	2.0	1.95
Inhalants	2.5	1.5	-1.0
Sample Size	15,400	1,360	

* Significantly different from the U.S. at the .05 significance level

GENDER COMPARISONS

A comparison of substance use by gender is shown in Table 1.3. For every substance except sedatives, the percentage of male users was higher than the percentage of female users. Males were four times more likely than the females to have used smokeless tobacco. On the other hand, sedative use was almost 50 percent higher among females than among males. The other gender differences were relatively small, although the differences for cocaine, hallucinogens, and heroin were statistically significant.

Table 1.3
Gender Comparison
Percent of Utah Students in Grades 7-12 Who Used Various Substances During Past Month by Gender: 1997

Substance	Female	Male
Alcohol	18.0	19.5
Cigarettes	14.2	15.5
Smokeless	1.4	6.1*
Marijuana	9.0	10.4
Amphetamines	2.0	3.1
Sedatives	6.3**	4.4
Cocaine	1.0	2.0*
Hallucinogens	2.3	3.8*
Heroin	0.4	1.5*
Inhalants	3.6	4.2
Sample Size	5,092	4,793

*Males significantly greater than females, p < .01
**Females significantly greater than males, p < .01

VALIDITY OF DATA

Two major validity questions need to be addressed. First, are the results biased because dropouts were not surveyed. Second, did most students respond honestly and accurately to the questionnaire?

With regard to the first question, Johnston et al. (1996) found that their estimates of high school drug use were slightly lower (1-4 percent) than they would have been if dropouts had been included in their survey. Since a similar type of probability sample was used in this study, estimates of use may be slightly lower than they would have been if dropouts had been included. However, students from alternative schools are similar to dropouts and we included a proportionate sample of alternative students in the survey.

Available data suggest that most students respond accurately to surveys on drug use (See Johnston et al., 1996). Two and three-tenths percent of the respondents were omitted from the analysis because they reported having taken a fictitious drug or responded to drug-use questions in illogical ways. In previous research, correlations between a social desirability scale and drug use were small and insignificant, which indicates that students do not underreport or overreport drug use in order to respond in a socially acceptable manner. Overall, there is a substantial amount of evidence that the anonymous and confidential responses of high school students to questions regarding drug use are reliable and valid.

REFERENCE

Johnston, L. D., O'Malley, P. M., and Bachman, J. G. (1996). National Survey Results Drug Use

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from Monitoring the Future Study, 1975-1995: Volume 1, Secondary Students. Rockville,

Maryland: National Institute on Drug Abuse.

CHAPTER 2

RESEARCH METHODOLOGY

PLANNING AND OBJECTIVES

The overall purposes of this study were to (1) determine the prevalence and trends

of adolescent drug use in Utah and (2) estimate the proportion of adolescents who abuse

or are dependent on various drugs. This information will be valuable in planning

educational, prevention, and treatment programs. It was decided that the best method for

accomplishing these objectives was to conduct a survey in which a probability sample of

students would be administered a questionnaire in their classrooms.   Extensive planning

was done to develop a valid questionnaire, choose a valid probability sample of students,

meet legal requirements for administering questionnaires to students, and analyze the

information.

DEVELOPMENT OF QUESTIONNAIRES

The number of questions necessary to meet the objectives of the study was too

large for one questionnaire.   Therefore, we developed two different forms of the

questionnaire. The questionnaires were designed for administration to students in the

classroom. Input was received from a variety of professionals involved in drug research,

prevention, and treatment, including educational administrators, school counselors,

teachers, parents, narcotics officers, drug counselors, sociologists, and students.

Form 1 of the questionnaire included items regarding a variety of risk and protective factors. It was designed by the Social Development Research Project for administration in Kansas, Maine, Oregon, South Carolina, Utah and Washington. In addition, many of the questions were similar to items used in a national survey conducted annually by the National Institute on Drug Abuse (Johnston et al., 1998).

Form 1 included 143 items in the following major areas: (1) background and demography, (2) use of various substances, (3) attitudes toward drug use and other deviant behavior, (4) attitudes toward school, (5) characteristics of friends, (6) attachment to parents, and (7) attachment to neighborhood.

Form 2 of the questionnaire included items from a standardized instrument prepared by the National Technical Center (NTC). The NTC instrument was originally used as an interview schedule for adults, but we modified it for use as an adolescent questionnaire. Form 2 included 97 items in the following areas: (1) Background and demography, (2) use of various substances, (3) amount of substances used, (4) perceived dependency and abuse, (5) perceived need for treatment, and (6) perceived availability of treatment. The first 14 items of both forms of the questionnaire were identical. A copy of each questionnaire is in Appendix 1.

Both questionnaires were reviewed by numerous people before the study was conducted, including attorneys for the Utah State Office of Education, the Institutional Review Board of Brigham Young University, Verne Larsen of the Utah State Office of Education, Steve Harrison of the University of Utah, and Shaheen Hossain and Allen Sherwood of the Utah State Division of Substance Abuse. In addition, the questionnaires

were reviewed by many superintendents, principals, school boards, drug education teachers, drug free coordinators, and parents in various school districts in Utah.

We conducted a pilot study to test and refine the questionnaires. First, the questionnaires were given to a small group of 25 college students. This was used to determine how long it took them to complete the questionnaires and to check for any problems or ambiguities with the questions. After the questionnaires were revised, they were administered to 25 high school students. The purpose was to determine how long it took different types of students to complete the questionnaires and if there were problems with the administration procedure and any particular items. The information learned from the pilot study was used to refine the questionnaires and to check on administration procedures.

POPULATION AND SAMPLE

The population was all of the students in Utah public schools in grades 7-12 during the 1996-1997 academic year, a total of 222,116 students. Our objective was to estimate drug use at a precision level of three percent for the state. If we took repeated samples, our estimates of drug use would be within three percent of the drug use of the entire population. To illustrate, suppose that we found that 18 percent of the students in the sample used alcohol during the past month. A three percent precision level means that we can be 95 percent confident that the rate for the entire population would be between 15 percent and 21 percent.

Based on error rates from the survey we conducted in 1994, we estimated that 516 classrooms were needed to obtain a precision level of 3 percent for the state and 5 percent

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for each planning district, assuming an average class size of 25. We estimated the number of classrooms that needed to be drawn from each of the 13 planning districts in Utah. A listing of the number of classrooms that needed to be sampled from each planning district is shown in Table 2.1.

Table 2.1 Estimated Number of Classrooms Needed in Each Planning District for a Precision Level of 3 Percent	
1. Bear River	20
2. Weber	52
3. Salt Lake	62
4. Davis	32
5. Tooele	30
6. Wasatch	20
7. Utah	40
8. Summit	40
9. Central	40
10. Washington	50
11. Uintah	42
12. Four corners	60
13. San Juan	28
Total	516

Using population figures from the Utah State Office of Education for the 1996-1997 school year, we determined the number of students in grades 7-12 in each school district and summed these to obtain totals for each planning district. After talking with principals and other school personnel in each school district, we found that the average class size was at least 25 in virtually every school district. We divided the total population of each planning district by 25 to get an estimated number of classrooms in each planning district.

Next, we numbered each classroom in this hypothetical array of classrooms and partitioned it by school district and by school. For example, the Bear River Planning District had 14,592 students in 4 school districts, which would be about 584 classrooms (14,592/25). Therefore, we had an array of classrooms numbered from 1 to 584. We partitioned these by school district as follows: Box Elder School District = 1-217, Cache School District= 218-471, Logan School District = 472-573, Rich School District = 574-584. The same procedure was used within each of the planning districts.

We used a random number generator to identify the classrooms to be chosen within each planning district. For example, for the Bear River Planning District the number of classrooms needed was 20. Therefore, we drew 20 random numbers between 1 and 584. We obtained 8 numbers between 1 and 217 (Box Elder School District), 8 between 218 and 471 (Cache School District), 4 between 472 and 573 (Logan School District), and none between 574 and 584 (Rich School District). This type of procedure was used to identify a given number of classrooms to be sampled from each planning district, partitioned by school district.

Next, we obtained a list of all the schools within each school district that had students in grades 7-12. We met with a representative from each school district, explained the purpose of the survey, and obtained final approval to conduct the survey. We confirmed with school personnel the actual number of students in grades 7-12 in each individual school. This enabled us to partition the array of classrooms in each school district by school. For example, Box Elder School District had 6 schools with students in grades 7-12: (1) Alice Harris Intermediate (360 students in grade seven), (2) Adele C.

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Young Intermediate (506 students in grade seven), (3) Bear River Middle (713 students in grades eight and nine), (4) Box Elder Middle (1,078 students in grades eight and nine), (5) Bear River High (1,085 students in grades 10-12) and Box Elder High (1,534 students in grades 10-12). The random numbers were distributed so that there were 2 classrooms to be drawn from Adlele C. Young Intermediate School, 2 classrooms from Box Elder Middle School, 1 classroom from Box Elder High School, and 3 classrooms from Bear River High School. None of the random numbers matched classrooms from Alice C. Harris Intermediate.

We went to the principal of each school and requested permission to randomly draw the required number of classrooms. For example, we asked to draw three classrooms from Bear River High and one from Box Elder High. We requested a sheet which listed all the classes being taught in the school by hour. In most cases, we randomly chose a given hour and then randomly chose the needed number of classrooms within that hour. In some cases, the principal asked us to use an alternative procedure, such as randomly choosing from required classes rather than by hour. We agreed to do this as long as we could choose the classes randomly. For example, one alternative procedure was for a principal to give us a list of all the required classes for the grades in the school (such as health, English, or history). We made certain this set of classes included all of the students in the school (for example, health may be required for 10th graders and English for 11th and 12th graders) and then got a list of all of those classes. Then we randomly picked the required number of classes. There were a couple of schools in which the principals did not allow us to use the random procedure but this was so small as to be inconsequential. In a few

cases, a class that was chosen could not participate (because the particular class was involved in some special activity or testing) and then we randomly chose an alternative class.

Millard, Provo, and Washington school districts requested that we over sample in order to be able to provide more precise data for their school districts. Within these three school districts, the classrooms were chosen randomly as in all the other districts, but we increased the number of classrooms that were sampled. The original sampling plan had 15 classrooms from Millard School District and this was increased to 20. We had planned to sample 7 classrooms from Provo School District and we increased this to 23. In the Washington School District the planned classroom number was 31 and we increased this to 37.

A total of 38 of the 40 Utah school districts agreed to participate in the survey. Tintic School District and Duchesne School District refused to participate in the survey. Tintic School District included less than one-tenth of one percent of the Utah school population and only 2 percent of the population of the Central Planning District. Duchesne School District was only one percent of the state's school population and 41.6 percent of the population in the Uintah Planning District. The 38 school districts in the sample included **98.9** percent of the state's population in grade's 7-12.

Carbon School District agreed to participate only if Form 2 of the questionnaire was used. The randomization process eliminated a couple of small districts from one or the other questionnaire. For example, only one classroom was randomly chosen from Daggett and Piute school districts and both were randomly assigned to receive Form 2. Wayne

School District had only one classroom chosen and it was randomly assigned to be given Form 1.

In addition to the regular sampling, we requested permission to sample students attending alternative schools. Because of the nature of the alternative schools, it was not possible to draw all of the students randomly. We attempted to select students from typical classes. In some cases, we got students in a particular program or who came in during a given week. In all cases, the teachers assured us that these were typical students at the alternative school even though they were not a probability sample of all alternative students.

PARENTAL PERMISSION

After identifying the specific classes in each school, we visited each class to obtain teacher cooperation, explain the purpose of the survey, get a roll of the class, and hand out parental permission slips. Utah law required us to get permission of a parent or guardian before administering the questionnaire to any student. We asked the students to have their parents sign the permission slip and return it to school. Many of the teachers helped follow-up and collect the permission slips. We returned to the school to collect the permission slips and remind the students to return them. When parents did not return the slips, we called the parents, explained the purpose of the survey, obtained permission orally, and asked them to return the permission slip. If they had lost it or hadn't received it, we mailed them another copy. We continued calling parents and returning to a class until we received at least 80 percent of the permission slips in each school.

In most cases where parental permission was not obtained, it was because we were

not able to contact the parent. A total of 330 parents (2.58% of the total sample) returned

the permission slip but did not give their child permission to complete the questionnaire.

A copy of the permission slip is in Appendix 2.

ADMINISTRATION OF QUESTIONNAIRES

After the permission slips were returned, we scheduled a time to administer the appropriate questionnaire to each class. A research worker traveled to the school and administered the questionnaire on the assigned day. We randomly distributed the two forms of the questionnaire to classes. If there were two classes in a school, we gave one class Form 1 and the other class Form 2. When there were odd numbers of classrooms, we randomly chose whether the extra class received Form 1 or Form 2.

Each research worker explained the purpose of the survey to the students, told them that participation was voluntary and that all responses were anonymous, explained what anonymous means, and handed out the questionnaires to the students. To ensure privacy, all students were given an envelope in which to place the completed questionnaire. When the questionnaires were completed, the research worker collected the envelopes. Using envelopes ensured the students that no research worker or student would be able see any of their responses. A copy of the instructions given to the students is in Appendix 3.

The final number of classrooms sampled was 525 from 197 schools in 38 school districts. As noted above, the 38 school districts include 98.9 percent of the Utah school population . Form 1 was completed in 260 classrooms and Form 2 in 265 classrooms. The total number of students who completed questionnaires was **10,496**, which was 82 percent of the total number of students on the rolls in the classrooms that were sampled.

DATA MANAGEMENT

An optical scanner was programmed to read the questionnaires. Each questionnaire was scanned to transfer the information to a computer file. Periodically, the electronic information was compared with the original questionnaire to ensure that all the information was being scanned accurately.

After completion of the scanning, the data were formatted and checked for errors. Two separate data files were created to correspond to Forms 1 and 2 of the questionnaire. We identified the common questions on Forms 1 and 2 and merged them into a third computer file. For analyses on risk and protector factors, the file from Form 1 was used. To analyze information on dependence, abuse, and the need for treatment, the file from Form 2 was used. For analysis of overall prevalence rates, the merged file 3 was used.

To minimize the effect of untruthful or careless respondents, we omitted all respondents who reported that they had taken a fictitious drug or who responded in logically inconsistent ways. The logically inconsistent respondents were those who reported on one question that they had never taken a given drug and then on the next question that they had used the drug within the past 30 days (See pages 31-32 for a more detailed explanation of the untruthful or careless respondents). The total number of students omitted was 245 or 2.3 percent of the sample. Thus, the <u>final number of cases used in the analysis was 10,251</u> (10,496 - 245).

REPRESENTATIVENESS OF SAMPLE

Thirty-eight of the 40 school districts in Utah participated in the survey, probability methods were used to sample the classrooms, and the student response rate among the classes sampled was 82 percent. Compared to the school population, the sample had a slight over-representation of females and minorities and a slight under-representation of seniors (See Table 2.2). In terms of gender, ethnic status, and grade, the sample was representative of the Utah school population.

NON-RESPONSE

Another threat to the representativeness of the sample was the amount of non-response to individual items. Students were told that they could skip any question they did not want to answer and it is common for survey respondents to skip some questions.

There was a small amount of non-response to questions on drug use, ranging from 1.6 percent for past month alcohol use to 2.9 percent for lifetime sedative use. These are typical rates for survey research and are similar to other non-drug items. The average amount of non-response for 20 questions on drug use was 1.85 percent. The average amount of non-response for 14 background questions (such as age, grade, gender, ethnic status, education of parents) was 1.9 percent. Thus, over 98 percent of the students who took the questionnaire completed the items on drug use and the students did not skip or avoid responding to questions about drug use.

Table 2.2
Comparison of Sample to Utah School Population
Population in Grades 7-12: 1997 (In percent)

		Population	Sample
Gender	**Female**	48.6	50.6
	Male	51.4	49.4
Ethnic Status	**African American**	0.6	0.7
	Asian	1.5	2.3
	Latino	5.0	5.5
	Native American	1.2	3.4
	Pacific Islander	0.8	0.4
	White	90.9	87.7
Grade	**7**	16.3	18.3
	8	16.6	17.6
	9	17.4	17.2
	10	17.1	16.8
	11	16.9	17.4
	12	15.7	12.7

ABSENT STUDENTS

Individuals who regularly use drugs are more likely to be absent from school and their omission from the sample may cause estimates of student drug use to be low. Johnston et al. (1988) studied how absenteeism was related to drug use and found that their estimates averaged 1.4 percent lower than they would have been had the absent students been included in their sample.

To help reduce this problem, we asked the teachers to administer the questionnaire

to absent students when they returned. When these were completed, the teacher returned them by mail or we returned to the school to pick them up. We obtained questionnaires from 812 of the students who were absent the day of the survey, which was 7.7 percent of our sample. We separated the questionnaires completed by absent students in order to compare their responses with the responses of students who completed their questionnaires on the day of the survey.

We examined the rates of substance use among the total sample and again among the sample with the absentees omitted. As expected, the rates of substance use were slightly lower when the absentees were not included. However, the overall rates were very similar and none of the differences was statistically significant, as shown in Table 2.3.

We also made a direct comparison of the absentees with the remainder of the sample. The absentees had higher usage rates for alcohol, cigarettes, and marijuana (See Table 2.4). For all other substances, the differences were small and not statistically significant.

These data suggest that the absent students not included in the survey probably had small effects on our results. For alcohol, cigarettes, and marijuana, the percentages of reported users may be slightly lower than they would have been if all absent students had been included.

Table 2.3
Comparison With & Without Absentees
Percent Who Reported Past Month Substance Use:
Comparison of Total Sample with a Subset Which
Excluded Students Absent the Day of the Survey

Substance	Total Sample	Sample Without Absentees
Alcohol	18.8%	17.7%
Cigarettes	14.9	14.0
Smokeless Tobacco	3.8	3.6
Marijuana	9.8	9.1
Amphetamines	2.5	2.5
Sedatives	5.4	5.2
Hallucinogens	3.0	3.0
Cocaine	1.5	1.6
Inhalants	3.9	4.0
Heroin	0.9	1.0

Table 2.4
Absentee & Non-Absentee Comparison
Percent of Absentees and Non-Absentees Who Used
Various Substances During the Past 30 Days

Substance	Non-Absentee	Absentee	Difference
Alcohol	17.7%	21.8%	4.1*
Cigarettes	14.0	17.5	3.5*
Smokeless	3.6	3.7	0.1
Marijuana	9.1	12.2	3.1*
Amphetamines	2.5	2.3	0.2
Sedatives	5.2	6.2	1.0
Hallucinogens	3.0	4.2	1.2
Cocaine	1.6	1.7	0.1
Inhalants	4.0	4.5	0.5
Heroin	1.0	0.9	-0.1

*p < .01

DROPOUTS

Johnston et al. (1988) extrapolated from household surveys to estimate how high school dropouts affected their findings. They found that their estimates of high school drug use would have been slightly higher had dropouts been included in their survey. Johnston

et al. (1988) concluded that school surveys provide valid approximations of actual prevalence rates, even though they tend to underestimate slightly actual rates of drug use among high school students.

To help minimize this problem in our survey, we included a sample of 456 students from alternative schools, which was 4.3 percent of the sample. Discussions with teachers and school counselors indicated that students at alternative schools were similar to dropouts in many respects. Furthermore, many students who eventually dropout attend alternative schools for a period. Therefore, we used the students from alternative schools as a proxy for dropouts. The State office of Education reported that the overall dropout rate for the 1996-1997 school year was 3.35 percent. Therefore, our sample of alternative students was sufficiently large to be a proxy for dropouts.

We examined the rates of substance use among the total sample and among a subset without the students from alternative schools. As expected, the rates of substance use were lower when the alternative students were not included, but the differences were small except for alcohol, cigarettes, and marijuana. When alternative students were included, the rates of alcohol use were 2.3 percent higher, the rates of cigarette use were 2.6 percent higher, and marijuana use was 1.8 percent higher (See Table 2.5).

Table 2.5
Comparison With & Without Alternative Students
Percent Who Reported Past Month Substance Use:
Comparison of Total Sample With a Subsample
Without Students from Alternative Schools

Substance	Total Sample	Sample Without Alternative Students
Alcohol	18.8%	16.5%
Cigarettes	14.9	12.3
Smokeless Tobacco	3.8	3.3
Marijuana	9.8	8.0
Amphetamines	2.5	1.9
Sedatives	5.4	5.1
Hallucinogens	3.0	2.5
Cocaine	1.5	1.3
Inhalants	3.9	3.9
Heroin	0.9	0.8

We also made a direct comparison of the students from alternative schools with the other students. For every substance, current use was significantly higher for students from alternative schools than for students from traditional schools. The differences were particularly large for alcohol, cigarettes, and marijuana (See Table 2.6). For example, almost half (48.7%) of the alternative students smoked cigarettes during the past month

compared to only 12.3 percent of regular students.

Table 2.6
Alternative & Regular Student Comparison
Percent of Students from Regular & Alternative Schools
Who Used Various Substances During Past 30 Days

Substance	Regular Students	Alternative Students	Difference
Alcohol	16.5%	45.2%	28.7*
Cigarettes	12.3	48.7	36.4*
Smokeless	3.2	9.9	6.7*
Marijuana	8.0	32.3	24.3*
Amphetamines	1.9	12.7	10.8*
Sedatives	5.1	8.3	3.2*
Hallucinogens	2.5	13.2	10.7*
Cocaine	1.3	6.8	5.5*
Inhalants	3.9	6.2	2.3*
Heroin	0.8	3.9	3.1*

*$p < .01$

Although the alternative students had substantially higher rates of drug use than other students, their omission would have altered the findings only slightly, as shown in Table 2.5. We attempted to minimize this bias by including a sample of alternative students, which we assume were similar to dropouts.

STATISTICAL SIGNIFICANCE AND WEIGHTING

Two types of statistical significance tests were used in this report. First, confidence intervals were constructed for each percentage. This enabled us to determine the precision of each percentage. Second, a difference of proportions test was used to compare two percentages. This allowed us to determine if two percentages were significantly different in size. For all confidence intervals, a 95 percent confidence interval was used. If we drew 100 samples, the estimate would fall within the stated interval 95 times. Similarly, for our significance tests we used .05 as the probability level.

Table 2.7 gives the 95 percent confidence intervals for substance use during the past 30 days. The largest confidence interval was 3.7 percent for alcohol and ranged from 16.9 percent to 20.6 percent. Thus, the estimate of 18.8 percent alcohol use has an error rate of $\pm$ 1.9%. All other substances have error rates of less than 1.9 percent.

It is important to distinguish between statistical and practical significance. With large samples, such as ours, some relatively small differences may be statistically significant but may not mean much practically. For example, a difference of less than 1 percent for cocaine use may be statistically significant but may not be very important practically. Generally, we do not consider differences of less than 2 percent to be important even if they are significant statistically.

Table 2.7
Confidence Intervals
Percent of Students Who Used Various Substances
During Past 30 Days with 95% Confidence Intervals

Substance	Percent Using	Lower Interval	Upper Interval	Interval Size
Alcohol	18.8	17.0	20.6	3.7
Cigarettes	14.9	13.2	16.6	3.5
Smokeless	3.8	3.1	4.4	1.3
Marijuana	9.8	8.4	11.1	2.7
Amphetamines	2.5	2.0	3.0	1.0
Sedatives	5.4	4.7	6.1	1.3
Hallucinogens	3.0	2.4	3.6	1.2
Cocaine	1.5	1.1	1.8	0.7
Inhalants	3.9	3.3	4.4	1.1
Heroin	0.9	0.6	1.2	0.6

The precision of confidence intervals depends on the size of the sample, the size of the percentage, and the amount of variance among the different classrooms that were sampled. Precision increases as the sample size increases, the percentage moves away from 50, or the variation decreases. In Table 1.2 sedative use for U.S. seniors was 2.1 compared to 6.1 among Utah seniors, a four percent difference. However, this difference

was not statistically significant because of the variation in sedative use was relatively large among Utah seniors.

Standard statistical techniques and software (e.g., Statistical Package of the Social Sciences [SPSS] or Statistical Analysis System [SAS]) assume that simple random sampling was used. Because our sample was a stratified one-stage cluster sample in which classrooms were randomly chosen within planning districts, standard techniques such as SPSS and SAS may produce inaccurate standard errors and significance tests (Johnson & Elliott, 1998; Sego, 1998). Therefore, we used Software for the Statistical Analysis of Correlated Data (SUDAAN) to compute our estimates (Shah, Barnwell, & Bieler, 1996). This package allowed us to use formulas which take into account the clustering of our sample design.

Statistical sampling weights are commonly used in the analysis of sample survey data in order to make more accurate predictions about the population from which the sample was taken. A statistical weight designed by Dr. Howard Christensen was used in the analysis of the survey data. The weight was the product of three ratios. The first ratio was the total number of students in a classroom divided by the number of valid responses that were received from that classroom. Invalid responses were students who did not take the survey or students who took the survey but responded in untruthful or illogical ways (which will be explained in more detail below). This ratio represented the inverse probability of selecting a given student within a classroom. It served primarily to compensate for non-responses and untruthful or illogical responses. The second ratio was the total number of classrooms within a planning district divided by the number of

classrooms that were sampled. This ratio represented the inverse probability of selecting a given classroom within a planning district. The third ratio was the total number of students within a planning district divided by the summed product of the first two ratios. This ratio was constant for a given planning district. The purpose of the third ratio was to allow the overall weight (the product of the three ratios) to sum to the total number of students within the planning district. Hence, summing the weights of the entire data set yielded the total number of students within the state. The purpose of the weight was to compensate for the inaccuracies of stratified cluster sampling by ensuring that each observation in the data set was representative of the actual population in Utah.

In the analysis we compared 1997 data with responses from surveys conducted in 1984, 1989, and 1994. The methodology of the surveys was similar except SUDAAN and the weighting of Howard Christensen were not available for the 1984, 1989, and 1994 surveys. In the analysis of the first three surveys we used a weight developed by Stephen Bahr to adjust sample sizes so that they were proportional to the actual school district populations.

To be able to compare the different surveys, we needed to know how the different weighting schemes affected the results. Therefore, we applied Bahr's earlier weights to the 1997 data and compared the results with those from SUDAAN using Howard Christensen's weights. The results for alcohol, cigarettes, marijuana, and sedatives are shown in Table 2.8. The prevalence percentages under the two different weighting schemes are similar, which indicates that it is appropriate to compare the 1984, 1989, and 1994 results with the 1997 results. However, as expected, the confidence intervals are

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larger using SUDAAN. Therefore, to compensate for the larger standard errors from the earlier surveys, we used a probability level of .01 when comparing earlier Utah surveys to the 1997 data.

	SAS & Bahr Weights			SUDAAN & Christensen Weights		
		95% Confidence Interval			95% Confidence Interval	
Substance	Percent Using	Lower	Upper	Percent Using	Lower	Upper
Alcohol	18.00	17.25	18.74	18.57	16.73	20.40
Cigarettes	14.24	13.57	14.91	14.59	12.90	16.28
Marijuana	9.29	8.73	9.85	9.63	8.28	10.97
Sedatives	5.28	4.85	5.71	5.41	4.75	6.07

TABLE 2.8
Comparison of Weighting Methods
Percent Using Substances During the Past Month by
Weighting Method: Utah, 1997

Note: These percentages are for comparative purposes only. They may vary slightly from those reported elsewhere in this report because these were not adjusted for missing data.

VALIDITY OF THE DATA

Can valid information on student drug use be obtained from a questionnaire? To encourage students to be truthful, the survey was voluntary and anonymous. Our analysis

suggests that only a very small proportion of students were careless or untruthful. We turn now to the available evidence that suggests that most students answered truthfully and accurately.

Fictitious Drug

To help identify those who may be careless or may purposely check drugs they have not taken, we included a fictitious drug on Form 1. Two percent of the students (105) reported that they had taken the non-existent drug. Tabulations were computed with and without those who reported having taken the non-existent drug. Differences between the two tabulations were small, one percent or less for most comparisons. This indicates that purposeful overreporting had only a small effect on the results.

Social Desirability

In the earlier surveys, we included the Marlowe-Crowne social desirability scale along with items on drug use. This scale was designed to identify people who respond in a socially acceptable manner, whether it be overreporting or underreporting. Correlations between social desirability and drug use were small. This indicates that students did not underreport or overreport drug use in order to respond in a socially acceptable manner.

Reporting Inconsistency

Reporting inconsistency was infrequent and had only a small effect on the overall results. We identified the number of students who reported on one question that they have never used a particular drug and then on the next question responded that they had used

that drug during the past 30 days (For example, to respond on one question that they had never used marijuana and then on the next question that they had used marijuana in the past 30 days). A total of 159 students or 1.5 percent of the sample responded in a logically inconsistent way to one of the drug questions. These figures indicate that only a small percentage of the students were careless or purposely reported incorrect answers. Usage rates computed after omitting inconsistent respondents were similar to but slightly less (from 0.7% to 1.2% less) than those obtained for the entire sample. The responses from all inconsistent respondents were omitted for all tabulations. By eliminating the inconsistent respondents, we minimized any bias that may result from careless and untruthful students.

Test-Retest Reliability

In a previous survey, test-retest data were collected from 106 senior high school students in central Utah. Twelve items on drug use were included in two different questionnaires which were administered one week apart. Ninety-five percent of the responses at time two were identical to those at time one. This suggests that high school students are able to respond consistently over time to drug-use questions.

Consistency In Different Studies

Several scholars have compared self-reports with other collection methods and have found evidence for the validity of self-reports of drug use (Bauman et al.,1982; Bonito et al., 1976; Smart, 1975; Smart and Blair, 1978; Smart and Jarvis, 1981; Stacy et al., 1985; Whitehead and Smart, 1972). The consistency of results in different regions and using different methods suggests that the results are reasonably valid (Needle et al., 1983;

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O'Malley et al., 1983).

In summary, data on a fictitious drug, inconsistent responses, social desirability, and test-retest reliability suggest that a large majority of students responded truthfully and accurately. Overreporting has been shown to be minimal and students who responded inconsistently were eliminated from the sample. Since the same methodology was used in the Utah surveys conducted in 1984, 1989, 1994, and 1997, any biases should be constant across the surveys and allow us to make valid comparisons over time. Overall, there is substantial evidence that the student responses were reliable and valid.

PREVALENCE

Figure 3.1 shows the proportion of Utah students who reported using alcohol, cigarettes, marijuana, or sedatives during the past month. Almost one in five Utah students consumed alcohol during the past month, 15 percent said that they smoked cigarettes, and about one student in ten admitted using marijuana. One student in every 20 reported taking a sedative illegally during the past month.

FIGURE 3.1
Percent of Students in Grades 7-12 Who Used Selected
Substances During Past Month:
Utah 1997

Substance	Percent Using
Alcohol	18.8
Cigarettes	14.9
Marijuana	9.8
Sedatives	5.4
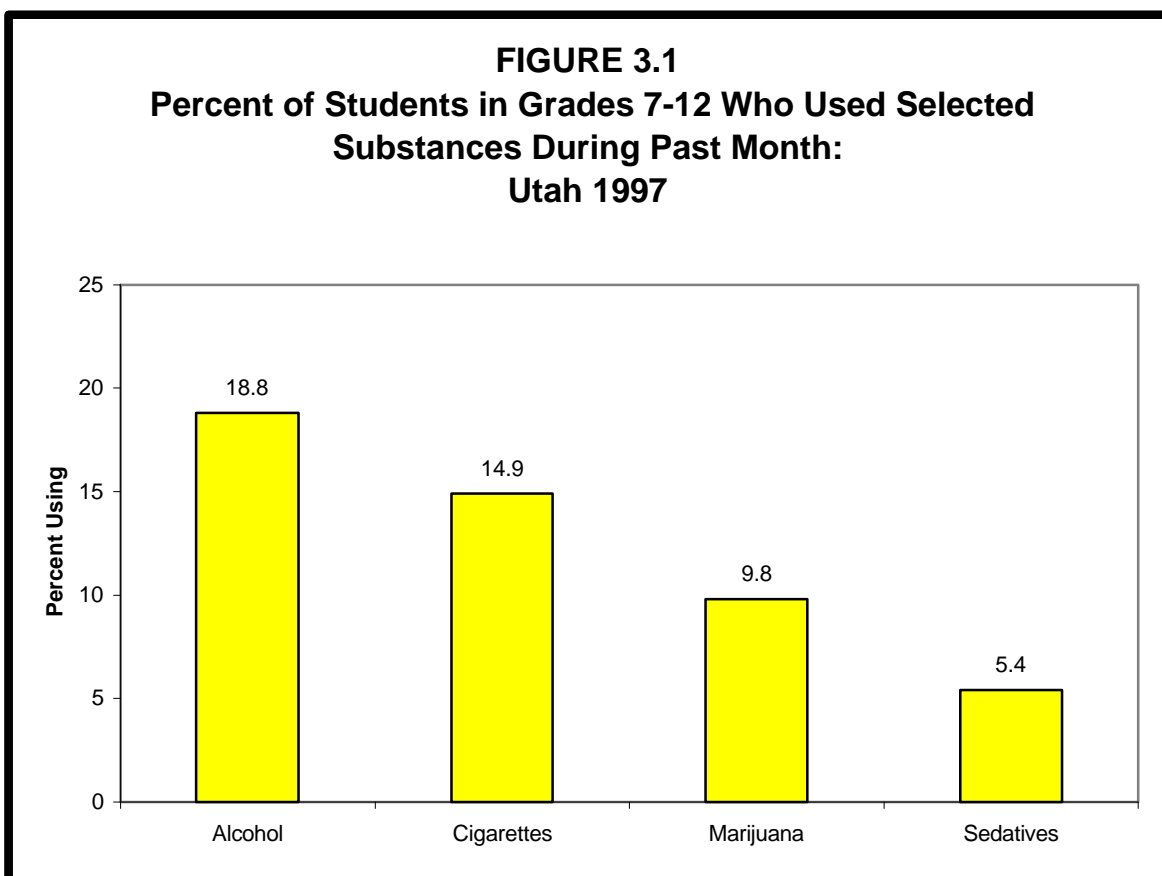
Figure 3.2 shows the proportion of students who used inhalants, smokeless tobacco, hallucinogens, or amphetamines during the past month. Almost 4 percent of the students inhaled a substance to get high, 3.8 percent used smokeless tobacco, 3 percent tried a hallucinogen, and 2.5 percent took an amphetamine illegally.

Figure 3.2
Percent of Students in Grades 7-12 Who Used Selected
Substances During Past Month:
Utah 1997
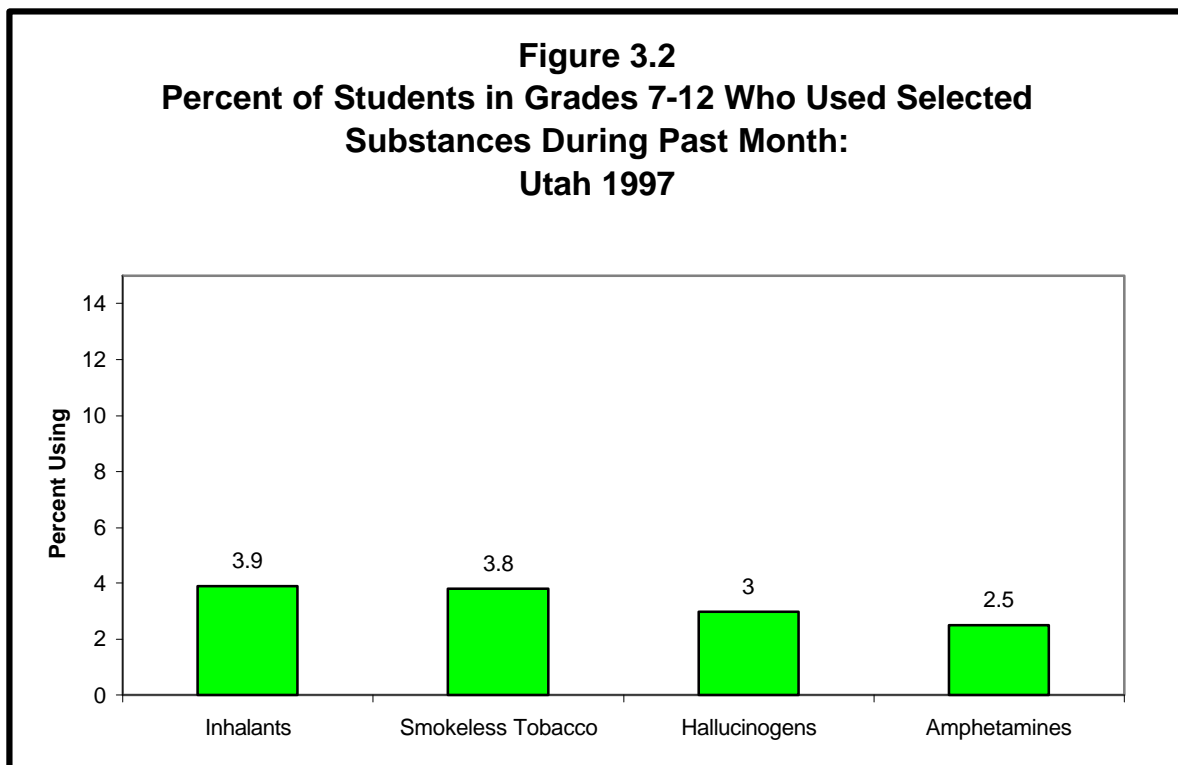
Table 3.1 gives the percentage of students who used each of ten substances during the past month, along with 95 percent confidence intervals for each percentage. The largest confidence interval is for alcohol and ranges from 17.0 percent to 20.6 percent or $\pm$1.9%. Thus, in 95 of 100 samples, the proportion of students reporting monthly alcohol use would be between 17.0 percent and 20.6 percent. The error rates for the other

substances are less than 2 percent, as shown in Table 3.1.

Table 3.1
Past Month Use
Percent of Utah Students in Grades 7-12 Who Used
Various Substances During Past Month: 1997

Substance	Percent Using	95% Confidence Intervals	
		Lower	Upper
Alcohol	18.8	17.0	20.6
Cigarettes	14.9	13.2	16.6
Smokeless Tobacco	3.8	3.1	4.4
Marijuana	9.8	8.4	11.1
Amphetamines	2.5	2.0	3.0
Sedatives	5.4	4.7	6.1
Cocaine	1.5	1.1	1.8
Hallucinogens	3.0	2.4	3.6
Heroin	0.9	0.6	1.2
Inhalants	3.9	3.3	4.4

A comparison of female and male drug use is shown in Figure 3.3. The largest male-female difference is for smokeless tobacco. Six percent of the males used smokeless tobacco during the past month compared to only 1.4 percent of the females. The percentages who used hallucinogens, cocaine, and heroin were somewhat higher among males than females, as shown in Figure 3.3. The only substance in which females were significantly higher than the males was for sedatives. The percentage of females who used a sedative illegally during the past month was 6.1 compared to only 4.4 percent among the males.

Figure 3.3
Gender Comparison of Percent of Students in
Grades 7-12 Who Used Selected Substances
During the Past Month : Utah 1997
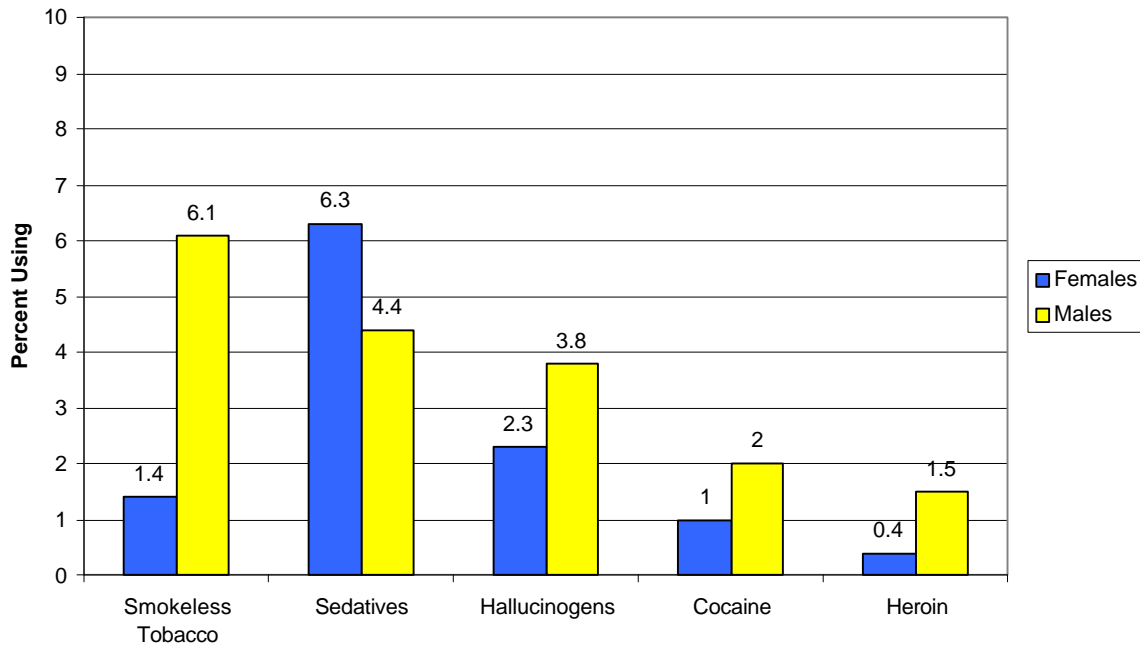
For alcohol, cigarettes, marijuana, amphetamines, and inhalants, female-male differences were not statistically significant. Only for smokeless tobacco and sedatives were male-female differences large. However, for every substance except sedatives, the percentage of males who used the substance during the past month was greater than the comparable percentage of females. A comparison of females and males for each substance is given in Table 3.2.

Table 3.2
Gender Comparison
Percent of Utah Students in Grades 7-12 Who Used
Various Substances During Past Month by Gender:1997

Substance	Female	Male
Alcohol	18.0	19.5
Cigarettes	14.2	15.5
Smokeless Tobacco	1.4	6.1*
Marijuana	9.0	10.4
Amphetamines	2.0	3.1
Sedatives	6.3**	4.4
Cocaine	1.0	2.0*
Hallucinogens	2.3	3.8*
Heroin	0.4	1.5*
Inhalants	3.6	4.2

*Males significantly greater than females, p < .01
**Females significantly greater than males, p < .01

Figure 3.4 shows how the use of alcohol, cigarettes, and marijuana varied by grade level. As expected, the proportion of students who used each substance increased as grade level increased. The largest increase in alcohol use occurred between eighth and ninth grades. The increase in cigarette use was steady across all grade levels. After tenth grade there was little change in the percent who used marijuana.

The largest increase in the use of smokeless tobacco was between ninth and tenth grades. Between grades eight and nine there was a large increase in sedative use. Smokeless tobacco, sedatives, and hallucinogens all decreased from tenth to eleventh grades followed by increases from eleventh to twelfth grades (See Figure 3.5).

Figure 3.4
Past Month Use of Alcohol, Cigarettes, and Marijuana by Grade: Utah 1997
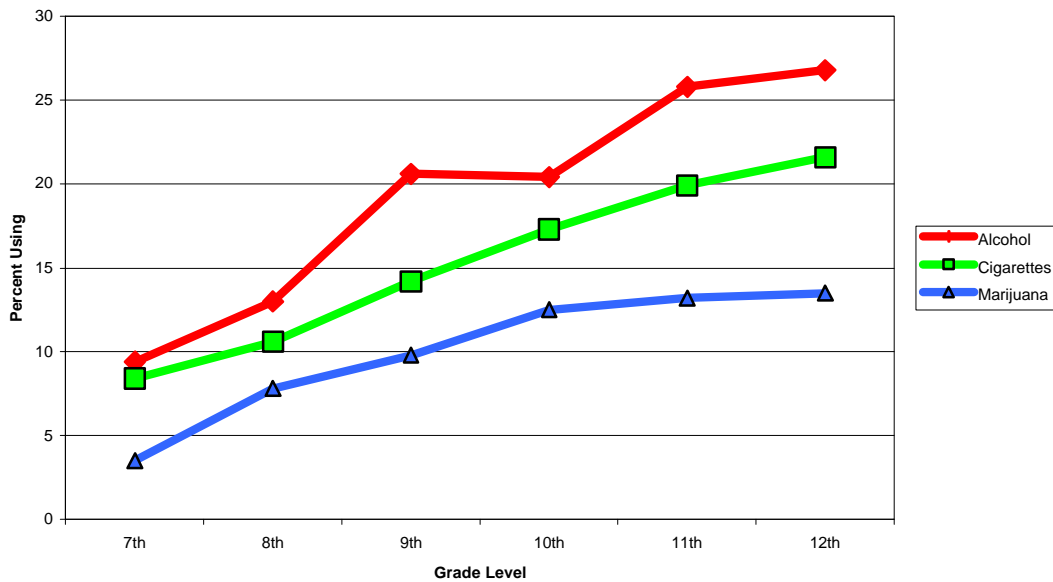
Figure 3.5
Past Month Use of Smokeless Tobacco, Sedatives, and Hallucinogens by Grade: Utah 1997

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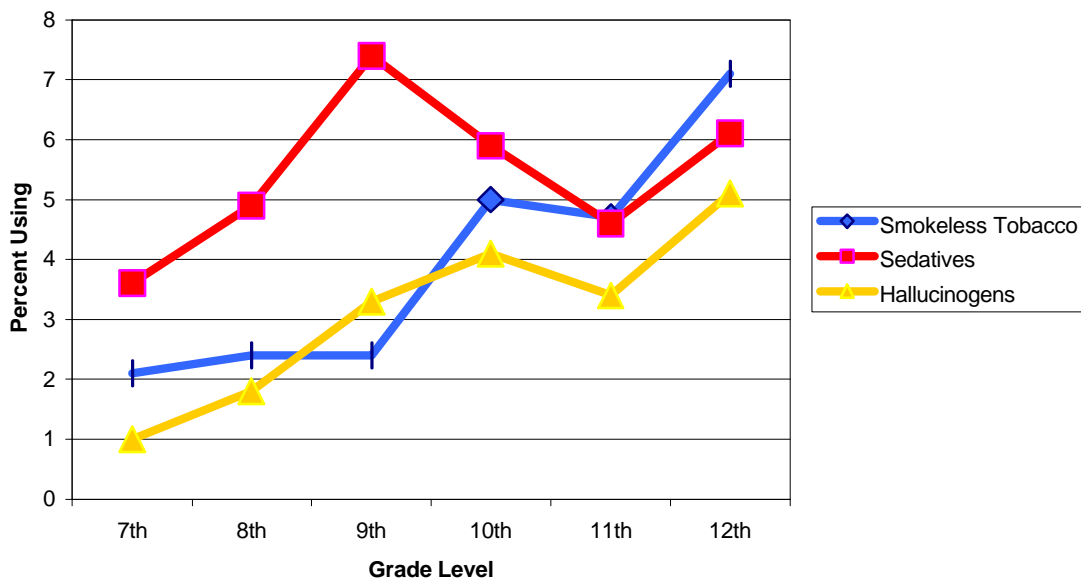
A comparison of substance use by grade level for all 10 substances is given in Table 3.3. All the substances showed increases in use as grade level increased, except for inhalants. The peak year for inhalant use was grade eight when 5.3 percent of the students said they inhaled a substance to get high. The percentage who used inhalants decreased from 5.3 percent in grade eight to 1.5 percent among seniors. The percent who used hallucinogens, cocaine, or heroin increased substantially as grade level increased. For example, hallucinogens increased from one percent among seventh graders to 5.1 percent among seniors. However, the overall percentage of students who reported current use of hallucinogens, cocaine, or heroin remained relatively small (See Table 3.3).

Table 3.3
Grade Comparison
Percent of Utah Students Who Used Various Substances
During Past Month by Grade Level:1997

Substance	Grade Level					
	7	8	9	10	11	12
Alcohol	9.4	13.0	20.6	20.4	25.8	26.8
Cigarettes	8.4	10.6	14.2	17.3	19.9	21.6
Smokeless Tobacco	2.1	2.4	2.4	5.0	4.7	7.1
Marijuana	3.5	7.8	9.8	12.5	13.2	13.5
Amphetamines	1.2	1.8	2.3	3.2	3.2	3.6
Sedatives	3.6	4.9	7.4	5.9	4.6	6.1
Cocaine	0.5	1.4	1.7	1.6	1.3	2.5
Hallucinogens	1.0	1.8	3.3	4.1	3.4	5.1
Heroin	0.3	0.7	0.7	1.2	0.8	2.0
Inhalants	4.2	5.3	4.7	4.5	2.2	1.5

Chapter 4

TRENDS

In this chapter we examine how drug use among students in grades 7-12 changed from 1984 to 1997. In addition to the 1997 survey, we conducted similar surveys in 1984, 1989, and 1994. The four surveys enabled us to make comparisons over the thirteen-year period.

ALCOHOL

From 1984 to 1997 there was a significant decrease in the proportion of students who consumed alcohol during the past month, as shown in Figure 4.1. During this period the percent of students who used alcohol during the past month decreased from 24.5 percent to 18.8 percent. However, between 1994 and 1997 there was no significant change in alcohol use.

CIGARETTES

From 1984 to 1997 there was a significant increase in the proportion of Utah students who smoked cigarettes. In 1984 about ten percent of the students had smoked cigarettes during the past month, and by 1997 this percentage had increased to 15 percent. Although the increases from one survey to the next were not large, the cumulative increase over the four surveys was relatively large, as shown in Figure 4.2. This trend was similar to a national increase in cigarette smoking among adolescents (Johnston et al., 1998). This increase in cigarette use is a major health concern for Utah adolescents that needs to be addressed in prevention and treatment efforts.

Figure 4.2
Change in Cigarette Use
Percent of Utah Students in Grades 7-12 Who Smoked
Cigarettes During Past Month: 1984 -1997

Year	Percent
1984	9.6
1989	10.5
1994	12.4
1997	14.9
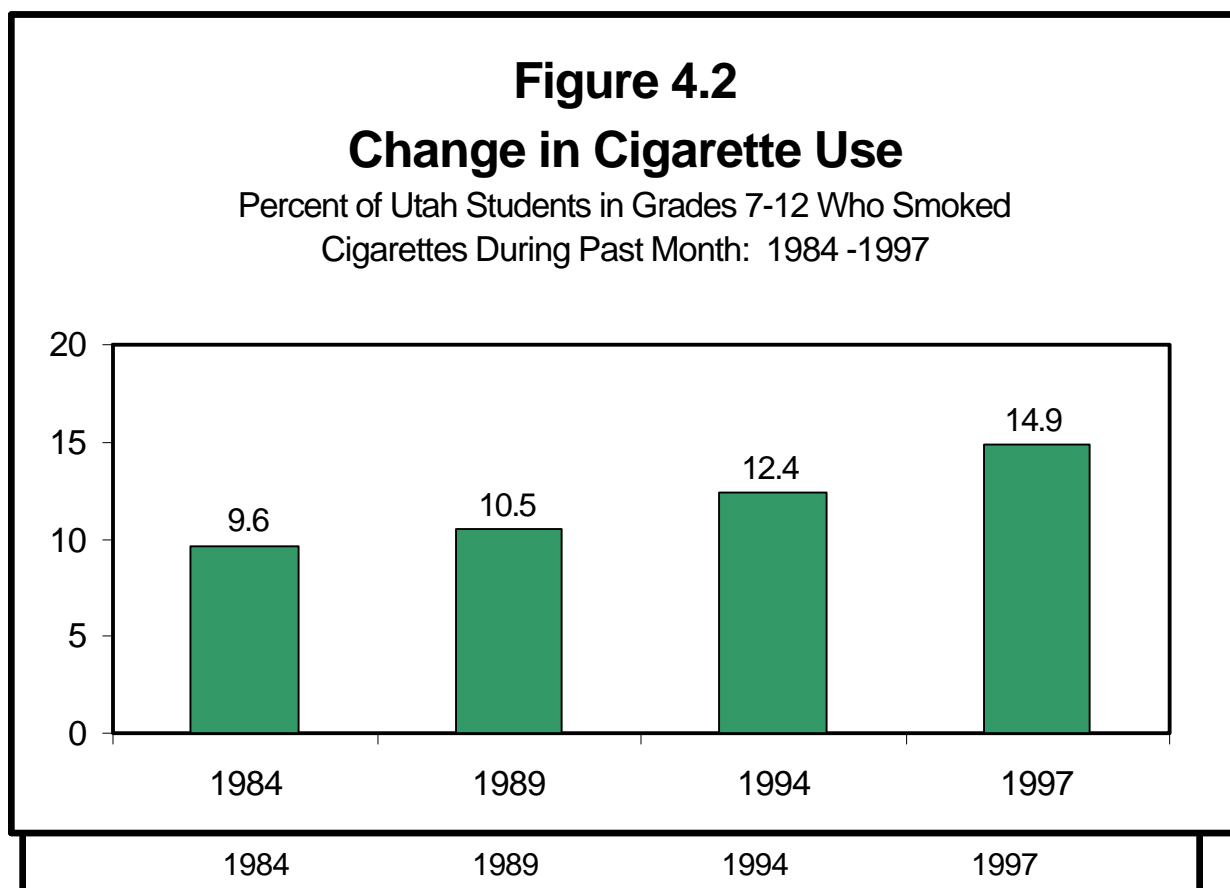
MARIJUANA

From 1984 to 1989 there was a large decrease in the percentage of students who smoked marijuana. However, since 1989 there has been an upward trend in marijuana use. In 1989, only 6 percent of the students had used marijuana during the past month. By 1997 this percentage had increased to 10 percent. Although the increase in marijuana use was not as large as the increase in cigarette use, the upward trend was similar. The number of adolescents who use marijuana is another major health concern that needs to be a focus of drug prevention and treatment efforts.

Figure 4.3
Change in Marijuana Use
Percent of Utah Students in Grades 7-12 Who Used
Marijuana During Past Month, 1984 - 1997

Year	Percent
1984	11.8
1989	6.1
1994	7.9
1997	9.8
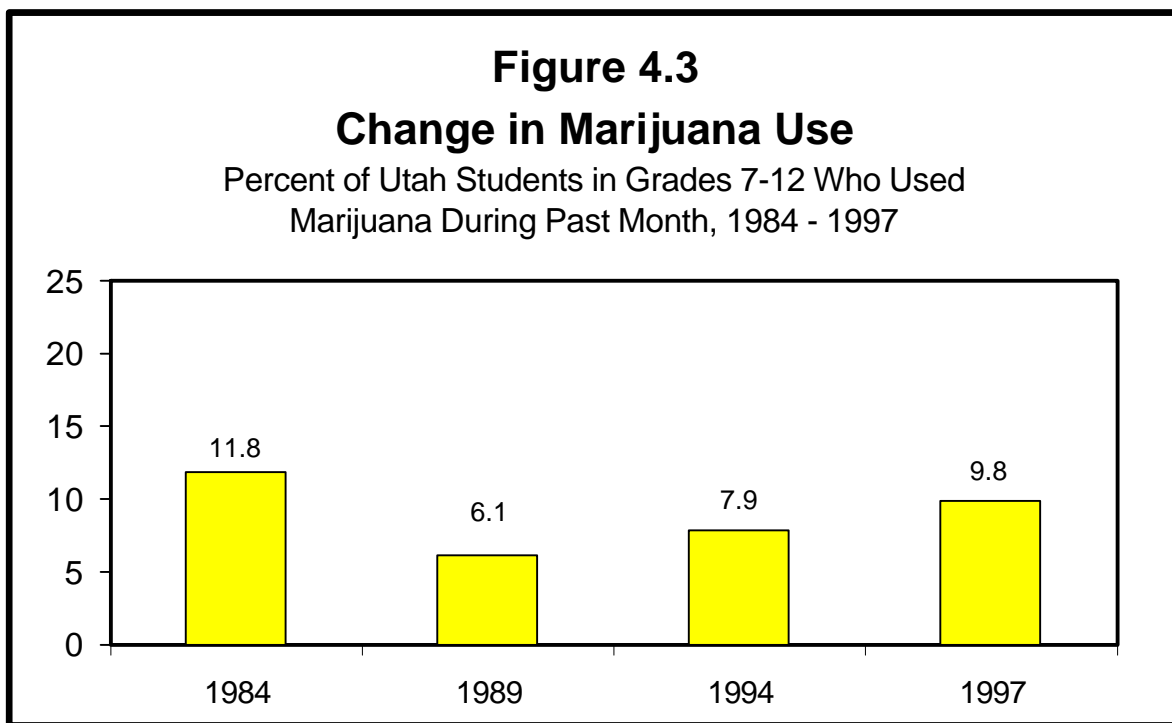
SEDATIVES

One of the unexpected findings was that one student in twenty reported the illegal use of a sedative during the past month. In 1984, there were 5.4 percent of the students who reported that they had used a sedative illegally during the past month. In 1989, less 2.9 percent of the students had used a sedative illegally during the past month. This percentage increased to 3.7 in 1994 and to 5.4 in 1997 (See Figure 4.4). There is a need for further study of the extent and nature of sedative use among Utah adolescents.

Figure 4.4
Change in Sedative Use
Percent of Utah Students in Grades 7-12 Who Used
Sedatives Illegally During Past Month, 1984 -1997

Year	Percent
1984	5.4
1989	2.9
1994	3.7
1997	5.4
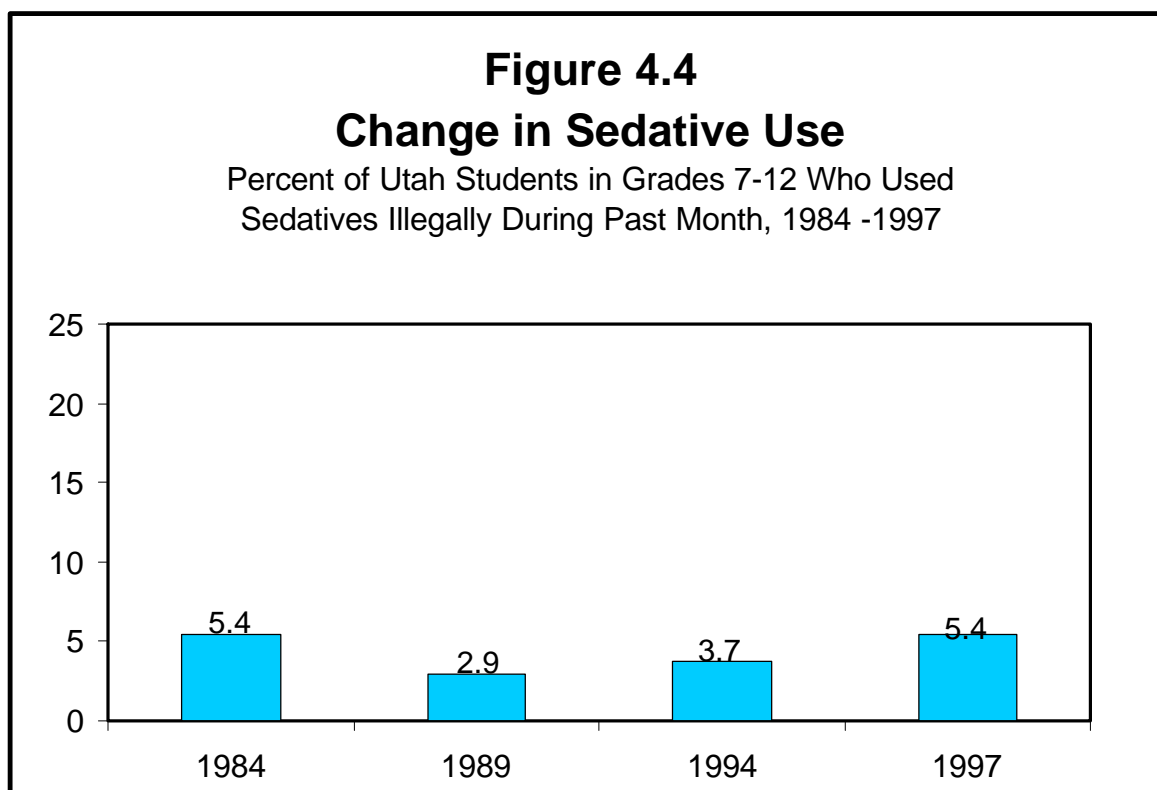
OVERALL TRENDS

A listing of the trends in adolescent use of ten different substances is presented in Table 4.1. There were *increases* in the proportion of students who used cigarettes, and since 1989, significant increases in the use of marijuana and sedatives. There were significant *decreases* in the percentage who used alcohol, smokeless tobacco, amphetamines, cocaine, and inhalants. The largest decrease was for smokeless tobacco. There were negligible changes in the percent who used hallucinogens or heroin. Although there was no significant change in alcohol use from 1994 to 1997, from 1984 to 1997 alcohol use decreased significantly.

Table 4.1
Change in Past Month Substance Use
Percent of Students in Grades 7-12 Who Used Various Substances During the Past Month: Utah 1984 to 1997

Substance	1984	1989	1994	1997	Change 94 to 97	Change 84 to 97
Alcohol	24.5	21.8	18.6	18.8	0.2	-5.7*
Cigarettes	9.6	10.5	12.4	14.9	2.5	5.3*
Smokeless Tobacco	**	**	5.3	3.8	-1.5*	**
Marijuana	11.8	6.1	7.9	9.8	1.9	-2.0
Amphetamines	6.4	3.9	5.0	2.5	-2.5*	-3.9*
Sedatives	5.4	2.9	3.7	5.4	1.7*	0.0
Cocaine	3.5	1.6	1.8	1.5	-0.3	-2.0*
Hallucinogens	4.0	2.7	3.5	3.0	-0.5	-1.0
Heroin/Opiates	1.7	0.5	1.0	0.9	-0.1	-0.8
Inhalants	5.2	4.2	5.5	3.9	-1.6*	-1.3*
Sample Size	46,665	26,789	15,790	10,496		

**Separate question on smokeless tobacco was not asked in 1984 or 1989

*Change significant at .05 level (p<.05)

Chapter 5

**UNITED STATES AND UTAH COMPARISONS**

Alcohol, cigarettes, and marijuana were used much less frequently by adolescents in Utah than by adolescents in the United States as a whole. The proportion of adolescents who use any illicit drug was also considerably less in Utah than in the entire of the United States.

The national data were obtained from the 1997 Monitoring the Future Study of U.S. students in grades 8, 10 and 12 (Johnston et al., 1998). Data collection took place in approximately 135 public and private high schools selected to provide an accurate cross-section of students throughout the United States. About 15,000 students were surveyed from each grade level and their procedures and questionnaires were similar to those used in our Utah survey. In this report we focus on the findings reported by seniors but the results were similar among students from grades eight and ten.

ALCOHOL

In Utah 26.8 percent of the high school seniors reported using alcohol during the past month, compared to 52.7 percent among seniors in the U.S. as a whole (See Figure 5.1). At each grade level, the proportion of Utah students who had alcohol within the past month was about half the proportion of U.S. students who consumed alcohol. Among tenth graders, 40.1 percent of the students in the U.S. as a whole had alcohol during the past month compared to only 20.4 in Utah. Among eighth graders the comparable percentages were 24.5 percent and 13 percent in the U.S. and Utah, respectively. As a measure of

alcohol abuse, students were asked how many times during the past two weeks they had

five or more drinks in a row. Thirty-four percent of seniors in the United States responded

at least once compared to seventeen percent of Utah seniors.

Figure 5.1
Percent of U.S. & Utah Seniors Who Used
Alcohol During the Past Month: 1997
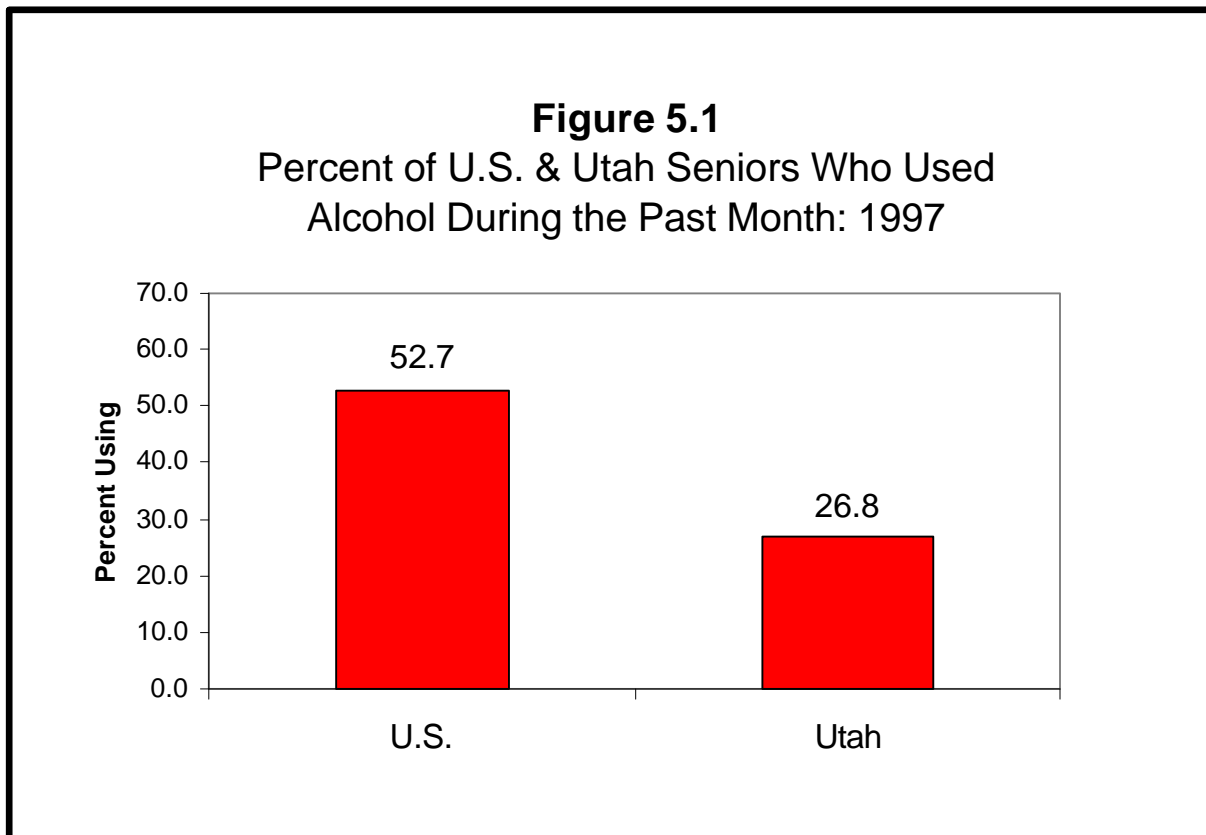
CIGARETTES

Current use of cigarettes is shown in Figure 5.2. Thirty-seven percent of seniors

in the United States have smoked cigarettes during the past month, compared to 22

percent among Utah seniors. Similar differences were found among eighth and tenth

graders (See Table 5.1).

Figure 5.2
Percent of U.S. & Utah Seniors Who Smoked
Cigarettes During the Past Month: 1997

	U.S.	Utah
Percent Using	36.5	21.6
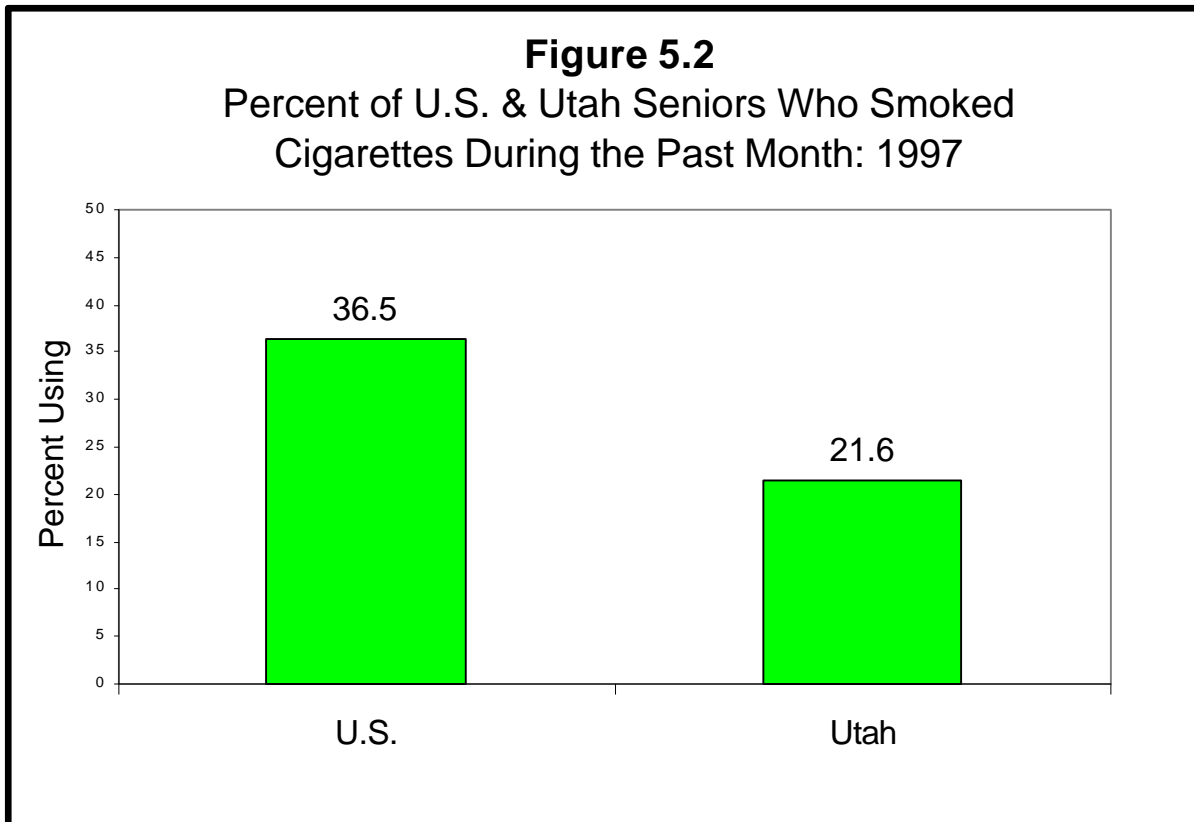
MARIJUANA

The proportion of seniors who have used marijuana during the past month was 24 percent in the United States and 14 percent in Utah (See Figure 5.3). Similar differences were found among students in grades 8 and 10. Twenty-one percent of U.S. tenth graders reported using marijuana during the past month compared to 13 percent of Utah tenth graders. For eighth graders, the comparable percentages were 10 for the U.S. and 8 for Utah (See Table 5.1).

Figure 5.3
Percent of U.S. & Utah Seniors Who Used
Marijuana During the Past Month
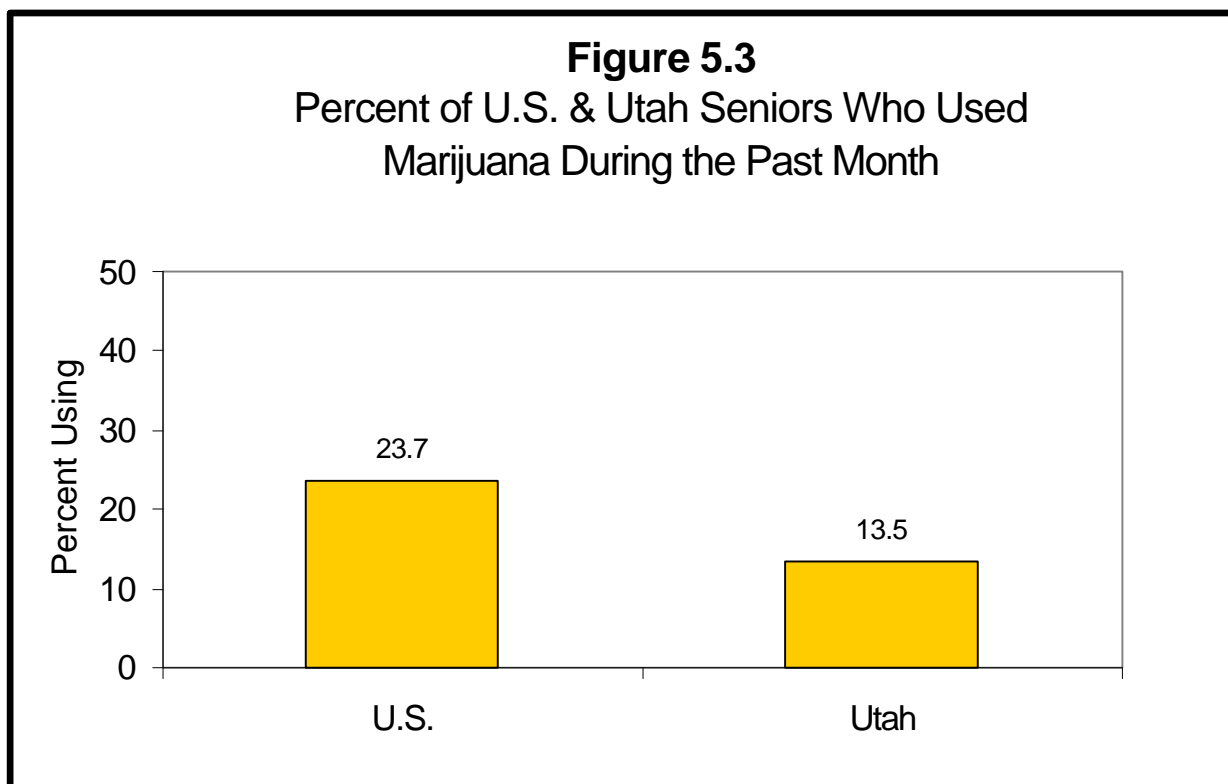
OTHER ILLICIT DRUGS

We computed the percentage of students who had used any of seven types of illicit drugs during the past month (marijuana, amphetamines, sedatives, cocaine, heroin, hallucinogens, or inhalants). A comparison of seniors is given in Figure 5.4. More than one fourth of seniors in the United States had used at least one of these seven substances during the past month. Among Utah seniors the comparable percentage was 16. This difference was slightly smaller among tenth graders: twenty-three percent in the U.S. and 17 percent in Utah. Among eighth graders the comparable percentages were almost identical, 12.9 for the U.S. and 12.4 for Utah (See Table 5.1).

Figure 5.4

Percent of U.S. & Utah Seniors Who Used Any
Illicit Drug During the Past Month: 1997
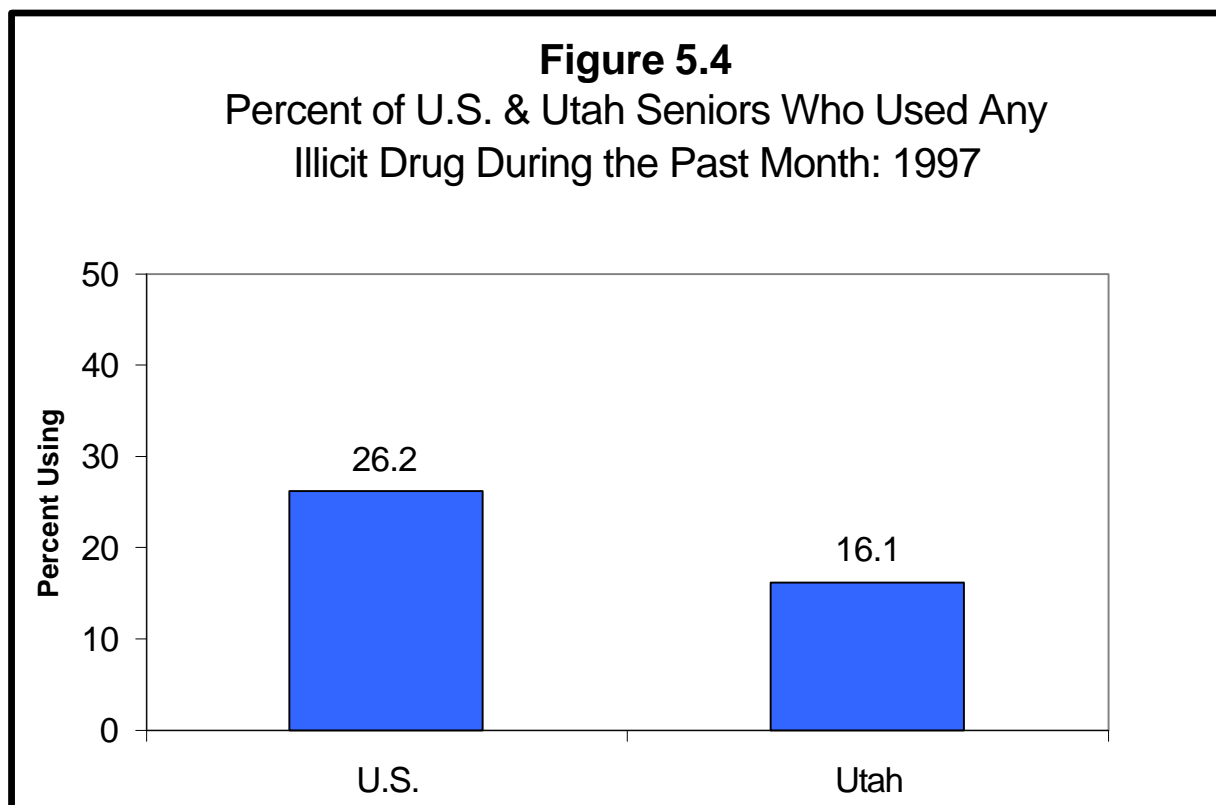
Table 5.1 provides a detailed comparison of Utah students with students in the United States as a whole. For both smokeless tobacco and amphetamines, the prevalence was somewhat lower in Utah than in the United States as a whole. For cocaine, heroin, hallucinogens, and inhalants, usage rates in Utah were similar to those in the United States.

In summary, the proportion of students who use of alcohol, cigarettes, and marijuana was substantially lower in Utah than in the United States as a whole. And a much smaller proportion of Utah than U.S. students reported using at least one illicit substance during the past month.

Table 5.1
U.S. & Utah Comparison
Percent of Students in Grades 8, 10, & 12 Who Used
Selected Substances During Past Month: 1997

	United States			Utah		
	Grade Level			Grade Level		
Substance	8	10	12	8	10	12
Alcohol	24.5	40.1	52.7	13.0	20.4	26.8
Cigarettes	19.4	29.8	36.5	10.6	17.3	21.6
Smokeless Tobacco	5.5	8.9	9.7	2.4	5.0	7.1
Marijuana	10.2	20.5	23.7	7.8	12.5	13.5
Stimulants	3.8	5.1	4.8	1.8	3.2	3.6
Cocaine	1.1	2.0	2.3	1.4	1.6	2.5
Heroin	0.6	0.6	0.5	0.7	1.2	2.0
Hallucinogens	1.8	3.3	3.9	1.8	4.1	5.1
Inhalants	5.6	3.0	2.5	5.3	4.5	1.5
Any Illicit Drug	12.9	23.0	26.2	12.4	16.8	16.1

CHAPTER 6

PLANNING DISTRICT COMPARISONS

Utah is divided into thirteen geographical regions which are called planning districts. Most planning districts include several school districts, although there is only one school district in Davis, Tooele, Wasatch, and San Juan planning districts. Table 6.1 lists the names of the planning districts and the school districts within each.

We will begin with an overall comparison of the thirteen planning districts followed by an examination of each individual planning district. Our purposes are to compare geographical regions and identify rates and trends within each planning district. This information may be useful in planning and allocating resources to substance abuse prevention and education.

ALCOHOL

The substance that is most often used by students is alcohol. Earlier we reported that almost one in five (18.8%) of Utah students in grades 7-12 reported using alcohol within the past 30 days. Figure 6.1 compares the 13 planning districts on student alcohol use. Three planning districts had significantly more alcohol use than the others. Four Corners had a prevalence rate of 31 percent, Summit 30 percent, and Tooele 28 percent. The next closest planning district was Weber with only 22 percent, which was not significantly higher than the state average. Utah (County) was the only planning district that was significantly lower than the state average and only 10.7 percent of its students reported alcohol use within the past 30 days.

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TABLE 6.1
Planning Districts and School Districts in Utah

Planning Districts	Abbreviation	School Districts
1. Bear River	BrR	Box Elder
		Cache
		Logan
		Rich
2. Weber	Web	Morgan
		Ogden
		Weber
3. Salt Lake	SLk	Granite
		Jordan
		Murray
		Salt Lake
4. Davis	Dav	Davis
5. Tooele	Tol	Tooele
6. Wasatch	Was	Wasatch
7. Utah	Uta	Alpine
		Nebo
		Provo
8. Summit	Sum	North Summit
		Park City
		South Summit
9. Central	Cen	Juab
		Millard
		North Sanpete
		South Sanpete
		Piute
		Sevier
		Tintic
		Wayne
10. Southwest	SW	Beaver
		Garfield
		Iron
		Kane
		Washington
11. Uintah	Uin	Daggett
		Uintah
		Duchesne
12. Four Corners	FCr	Carbon
		Emery
		Grand

FIGURE 6.1
Percent Using Alcohol During the Past Month
by Planning District: Utah, 1997

| | 13. San Juan | SJn | San Juan |
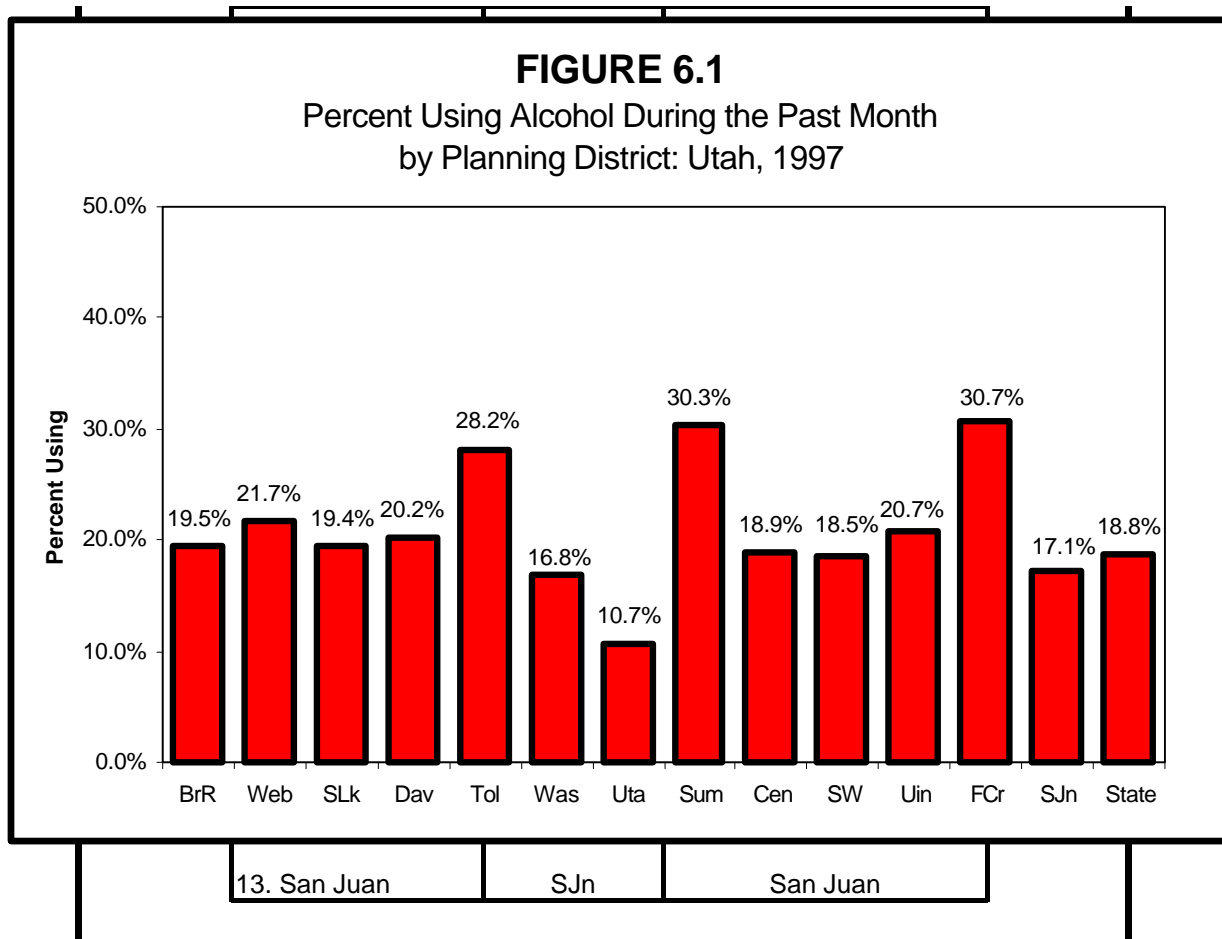
CIGARETTES

In Chapter 4 we reported that the proportion of Utah students smoking cigarettes increased steadily during the past decade. In 1997, 14.9 percent of Utah students in grades 7-12 said they had smoked cigarettes during the past 30 days. A comparison of cigarette use by planning district is given in Figure 6.2. Three planning districts were significantly higher than the state average: San Juan (22.2%), Four Corners (21.4%), and Tooele (20.3%). Two planning districts had rates of cigarette use that were significantly lower than the state average: Wasatch (8.5%) and Utah (8.3%).

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FIGURE 6.2
Percent Smoking Cigarettes During the Past Month
by Planning District: Utah , 1997
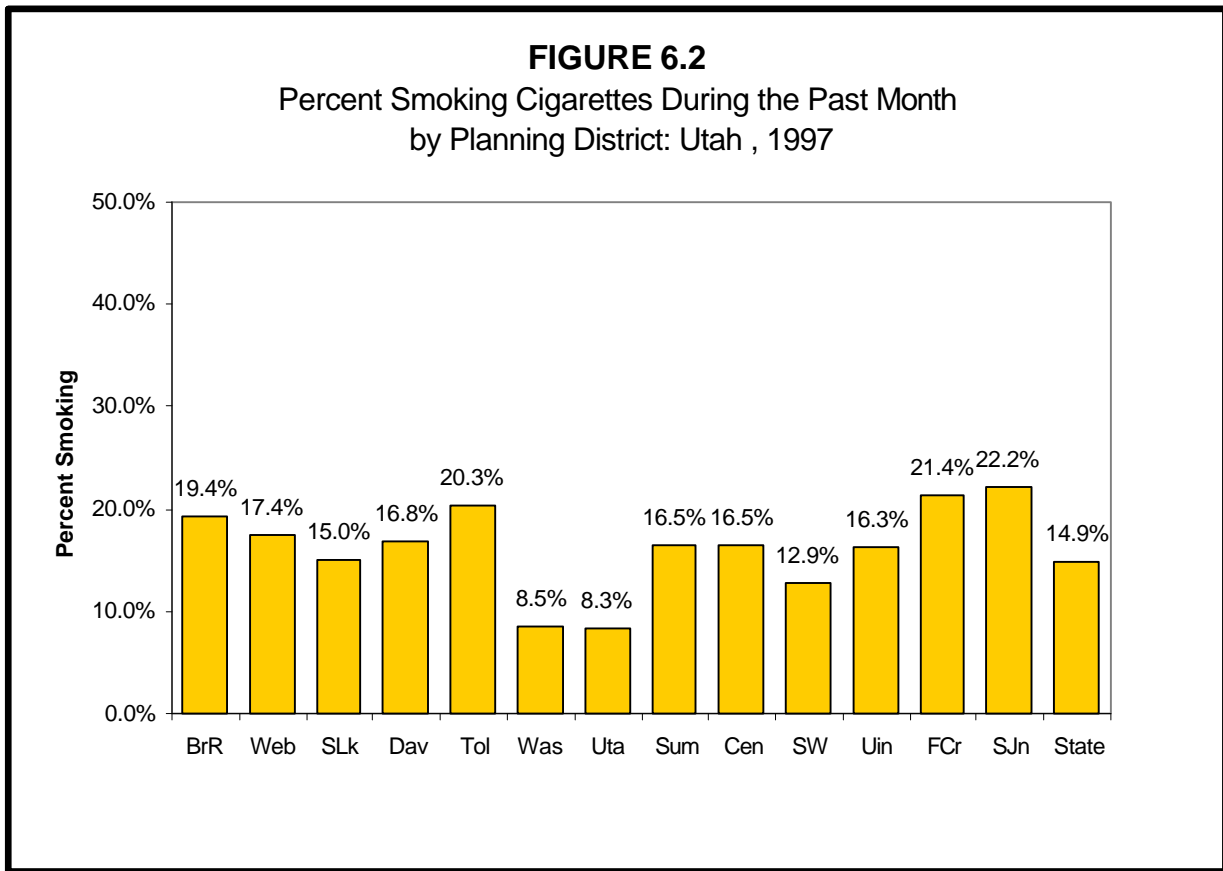
MARIJUANA

The most commonly used illicit drug is marijuana. During the past decade, both in Utah and in the United States as a whole, there was a significant increase in teenage marijuana use. As noted in Chapter 4, about one in ten Utah students in grades 7-12 reported using marijuana during the past month. A profile of marijuana use by planning district is given in Figure 6.3. The only planning district with a rate significantly higher than the state average was Tooele with a rate of 15.4 percent. Utah and Wasatch planning districts had rates of 4.5 and 5.0 percent, respectively, and were the only planning districts with rates significantly lower than the state average.

FIGURE 6.3
Percent Using Marijuana During the Past Month
by Planning District: Utah, 1997
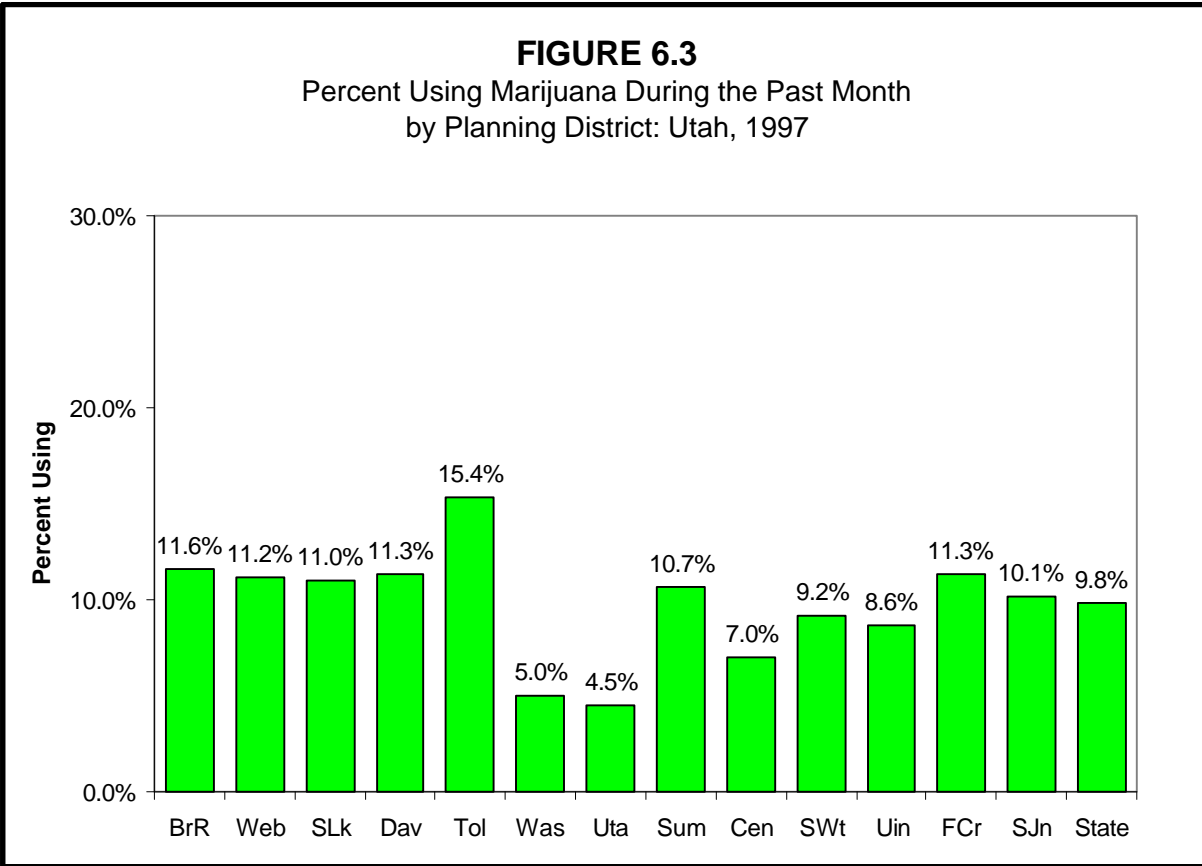
ILLICIT DRUGS

We computed the proportion of students who reported using any of seven illicit drugs: marijuana, amphetamines, sedatives, hallucinogens, cocaine, inhalants, and heroin. Fifteen percent of Utah students reported using at least one of these substances during the past month. Figure 6.4 compares the 13 planning districts on illicit drug use. The highest district was Tooele where 23.2 percent of the students admitted using at least one illicit drug during the past month. The lowest rates were in the Wasatch, San Juan and Utah planning districts, with rates of 11.8, 11.7 and 9.8, respectively.

FIGURE 6.4

Percent Using Any Illicit Drug During the Past
Month by Planning District: Utah, 1997
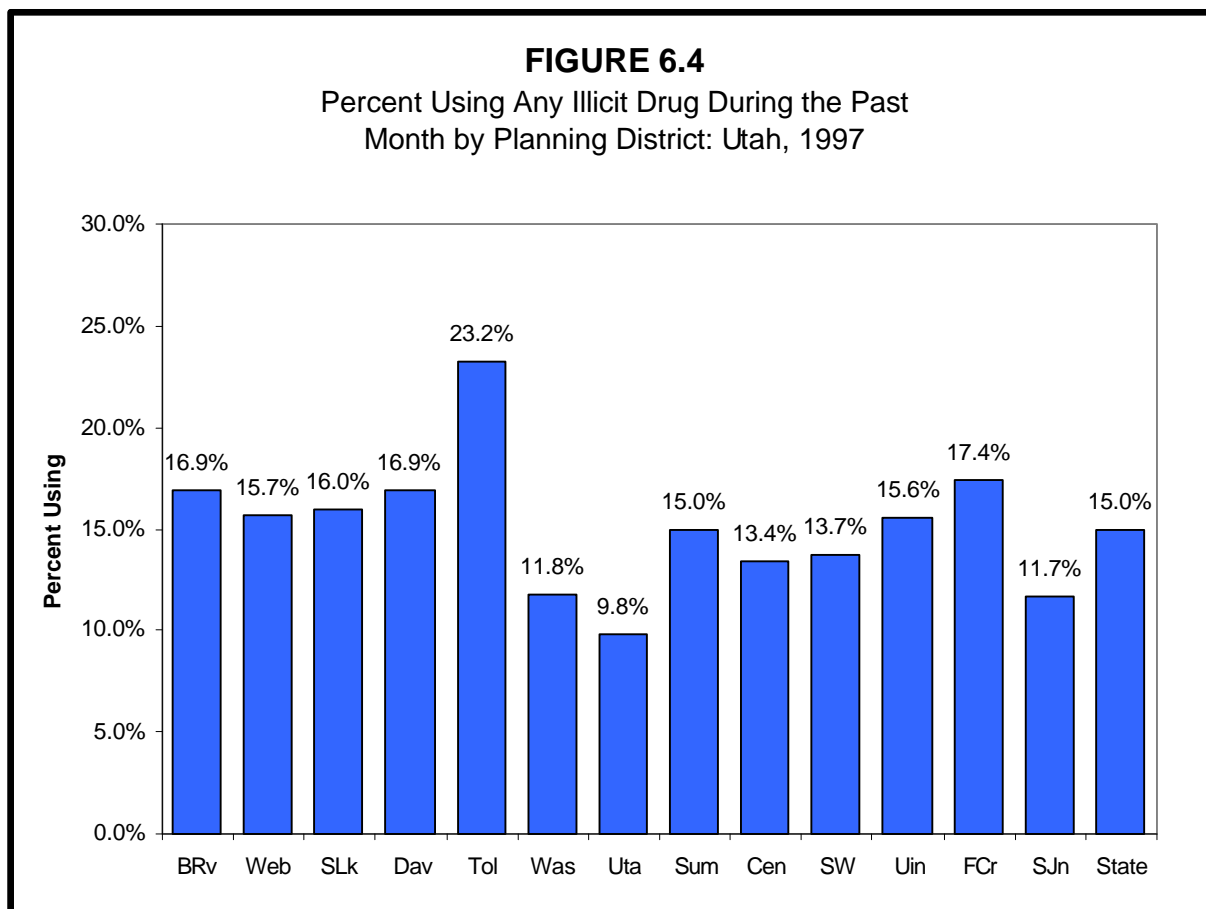
OVERALL COMPARISON

In Table 6.2 we compare each planning district on ten substances and on illicit drug use. In six of the eleven comparisons, Tooele had the highest rate in the state. Four Corners was the highest on alcohol, smokeless tobacco, and cocaine. San Juan was highest on cigarette use and Davis was the highest on hallucinogens. Utah County was the lowest on 9 of the 11 comparisons, Wasatch was the lowest on amphetamines, and San Juan was the lowest on hallucinogens.

Table 6.2
Percent of Students in Grades 7-12 Who Used Various Substances
During the Past Monty by Planning District: Utah 1997

Drug	BrR	Web	SLk	Dav	Tol	Was	Uta	Sum	Cen	SW	Uin	FCr	SJn	State
Smokeless Tobacco	7.0	3.8	2.6	3.6	4.7	6.7	2.5	5.3	8.0	3.8	6.9	8.2	8.1	3.8
Cigarettes	19.4	17.4	15.0	16.8	20.3	8.5	8.3	16.5	16.5	12.9	16.3	21.4	22.2	14.9
Alcohol	19.5	21.7	19.4	20.2	28.2	16.8	10.7	30.3	18.9	18.5	20.7	30.7	17.1	18.8
Marijuana	11.6	11.2	11.0	11.3	15.4	5.0	4.5	10.7	7.0	9.2	8.6	11.3	10.1	9.8
Amphetamines	4.1	3.4	2.6	2.5	5.0	1.0	1.1	2.1	3.1	1.3	2.5	3.5	1.7	2.5
Sedatives	4.7	4.3	5.8	6.3	9.3	5.0	4.3	5.4	4.9	5.0	6.3	7.8	4.3	5.4
Hallucinogens	3.1	3.3	3.3	4.9	4.0	1.5	1.2	4.5	2.1	2.4	1.7	3.9	1.1	3.0
Cocaine	1.9	2.6	1.3	1.8	2.1	1.7	0.6	1.7	2.1	0.9	2.1	2.7	1.3	1.5
Inhalants	3.2	3.3	3.6	4.9	6.7	4.2	3.1	5.5	4.3	4.2	5.7	5.6	3.9	3.9
Heroin	0.9	0.9	1.3	0.9	1.6	0.2	0.2	1.2	0.6	0.7	1.1	1.5	0.8	0.9
Any Illicit Drug	16.9	15.7	16.0	16.9	23.2	11.8	9.8	15.0	13.4	13.7	15.6	17.4	11.7	15.0
Sample Size	603	1,162	1,515	834	697	326	1344	445	966	1065	287	644	368	10,256

PLANNING DISTRICT ABBREVIATIONS:
BrR = Bear River   Sum = Summit
Web = Weber   Cen = Central
SLk = Salt Lake   SW = Southwest
Dav = Davis   Uin = Uintah
Tol = Tooele   FCr = Four Corners
Was = Wasatch   SJn = San Juan
Uta = Utah   State = Entire State of Utah

Now we turn to an examination of each planning district separately. For each district, we give the percent of the students who used each substance during the past month, along with standard errors and 95 percent confidence intervals. Then we show trends in use from 1989 to 1997.

BEAR RIVER

Bear River Planning District is similar to Utah as a whole. There have been significant increases in cigarette and marijuana use (See Tables 6.3 & 6.4).

Table 6.3 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Bear River Planning District,1997				
Drug	**Percent Using**	**Standard Error**	**Lower Confidence Interval**	**Upper Confidence Interval**
Smokeless Tobacco	7.0%	2.0%	3.0%	10.9%
Cigarettes	19.4%	4.0%	11.6%	27.2%
Alcohol	19.5%	3.4%	12.9%	26.1%
Marijuana	11.6%	2.8%	6.1%	17.0%
Amphetamines	4.1%	1.2%	1.8%	6.5%
Sedatives	4.7%	1.0%	2.8%	6.6%
Hallucinogens	3.1%	1.1%	1.0%	5.3%
Cocaine	1.9%	0.6%	0.7%	3.1%
Inhalants	3.2%	0.7%	1.8%	4.6%
Heroin	0.9%	0.5%	0.0%	1.9%

Table 6.4 Change in Past Month Drug Use, 1989 -1997 Bear River Planning District				
Drug	**1989**	**1994**	**1997**	**Change 1989 to1997**
Smokeless Tobacco	ns	4.2%	7.0%	2.8%
Cigarettes	10.0%	11.1%	19.4%	9.4%
Alcohol	17.0%	12.5	19.5%	2.5%
Marijuana	3.9%	4.2%	11.6%	7.7%
Amphetamines	3.0%	4.9%	4.1%	1.1%
Sedatives	2.4%	1.7%	4.7%	2.3%
Hallucinogens	1.0%	1.1%	3.1%	2.1%
Cocaine	1.3%	1.0%	1.9%	0.6%
Inhalants	2.8%	5.4%	3.2%	0.4%
Heroin	0.4%	0.5%	0.9%	0.5%
Sample Size	2,274	1,326	603	

WEBER

Drug use rates in Weber are not significantly different from rates for Utah as a whole. Recent changes also mirror those of the state, particularly increases in cigarette and marijuana use (See Tables 6.5 & 6.6).

Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless Tobacco	3.8%	0.7%	2.4%	5.2%
Cigarettes	17.4%	2.1%	13.4%	21.4%
Alcohol	21.7%	2.0%	17.8%	25.7%
Marijuana	11.2%	1.5%	8.3%	14.0%
Amphetamines	3.4%	0.8%	1.7%	5.0%
Sedatives	4.3%	0.8%	2.9%	5.8%
Hallucinogens	3.3%	0.7%	2.0%	4.6%
Cocaine	2.6%	0.8%	1.1%	4.1%
Inhalants	3.3%	0.7%	1.9%	4.6%
Heroin	0.9%	0.4%	0.2%	1.7%

Table 6.5
Percent of 7-12 Grade Students Who Used Drugs During Past Month:
Weber Planning District, 1997

Drug	1989	1994	1997	Change 1989 to 1997
Smokeless Tobacco	--	6.0%	3.8%	-2.2%
Cigarettes	11.5%	14.5%	17.4%	5.9%
Alcohol	26.4%	21.4%	21.7%	-4.7%
Marijuana	6.3%	9.2%	11.2%	4.8%
Amphetamines	4.6%	5.3%	3.4%	-1.2%
Sedatives	2.1%	3.9%	4.3%	2.2%
Hallucinogens	1.2%	3.5%	3.3%	2.1%
Cocaine	1.6%	1.3%	2.6%	1.0%
Inhalants	4.4%	5.7%	3.3%	-1.1%
Heroin	0.4%	0.5%	0.9%	0.5%
Sample Size	2273	1276	1162	

Table 6.6
Change in Past Month Drug Use, 1989 -1997
Weber Planning District

SALT LAKE

Salt Lake is similar to the state in the prevalence of and trends in adolescent drug use, including increases in cigarette and marijuana use (See Tables 6.7 & 6.8).

Table 6.7 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Salt Lake Planning District,1997				
Drug	*Percent Using*	*Standard Error*	*Lower Confidence Interval*	*Upper Confidence Interval*
Smokeless Tobacco	2.6%	0.5%	1.6%	3.6%
Cigarettes	15.0%	1.6%	11.8%	18.1%
Alcohol	19.4%	1.9%	15.7%	23.1%
Marijuana	11.0%	1.5%	8.1%	13.9%
Stimulants	2.6%	0.5%	1.7%	3.6%
Sedatives	5.8%	0.8%	4.3%	7.3%
Hallucinogens	3.3%	0.6%	2.1%	4.5%
Cocaine	1.3%	0.4%	0.6%	2.0%
Inhalants	3.6%	0.6%	2.5%	4.7%
Heroin	1.3%	0.4%	0.5%	2.0%

Table 6.8 Change in Past Month Drug Use, 1989 -1997 Salt Lake Planning District				
Drug	*1989*	*1994*	*1997*	*Change 1989 to1997*
Smokeless Tobacco	--	4.8%	2.6%	-2.2
Cigarettes	11.2%	12.9%	15.0%	3.8
Alcohol	25.3%	21.3%	19.4	-5.9
Marijuana	7.8%	9.5%	11.0%	3.2
Amphetamines	3.9%	5.1%	2.6%	-1.3
Sedatives	2.9%	4.1%	5.8%	2.9
Hallucinogens	2.4%	4.4%	3.3%	0.9
Cocaine	1.7%	2.2%	1.3%	-0.4
Inhalants	3.7%	6.0%	3.6%	-0.1
Heroin	0.6%	1.2%	1.3%	0.7
Sample Size	6658	2536	1515	

DAVIS

Davis Planning District is similar to state averages on most substances. From 1989 to 1997 there were increases in the use of cigarettes, alcohol, and marijuana (See Tables 6.9 & 6.10).

Table 6.9 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Davis Planning District,1997				
Drug	**Percent Using**	**Standard Error**	**Lower Confidence Interval**	**Upper Confidence Interval**
Smokeless Tobacco	3.6%	0.9%	1.8%	5.4%
Cigarettes	16.8%	3.3%	10.3%	23.3%
Alcohol	20.2%	3.2%	14.0%	26.5%
Marijuana	11.3%	2.5%	6.5%	16.1%
Stimulants	2.5%	0.7%	1.2%	3.8%
Sedatives	6.3%	1.0%	4.4%	8.1%
Hallucinogens	4.9%	1.2%	2.5%	7.3%
Cocaine	1.8%	0.5%	0.8%	2.8%
Inhalants	4.9%	0.9%	3.2%	6.6%
Heroin	0.9%	0.3%	0.2%	1.5%

Table 6.10 Change in Past Month Drug Use, 1989 -1997 Davis Planning District				
Drug	**1989**	**1994**	**1997**	**Change 1989 to1997**
Smokeless Tobacco	--	3.0%	3.6%	0.6%
Cigarettes	8.6%	10.2%	16.8%	8.2%
Alcohol	15.2%	16.3%	20.2%	5.0%
Marijuana	4.7%	6.9%	11.3%	6.6%
Amphetamines	3.4%	5.4%	2.5%	-0.9%
Sedatives	2.6%	3.7%	6.3%	3.7%
Hallucinogens	1.2%	3.4%	4.9%	3.7%
Cocaine	1.5%	1.4%	1.8%	0.3%
Inhalants	4.5%	4.0%	4.9%	0.4%
Heroin	0.4%	1.3%	0.9%	0.5%

Sample Size	2001	1046	834	

TOOELE

Tooele is higher than state averages for alcohol and sedatives. There have been significant increases in the use of cigarettes, marijuana, and sedatives. (See Tables 6.11 & 6.12).

Table 6.11 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Tooele Planning District,1997				
Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless Tobacco	4.7%	1.0%	2.8%	6.6%
Cigarettes	20.3%	2.6%	15.3%	25.4%
Alcohol	28.2%	2.7%	23.0%	33.4%
Marijuana	15.4%	2.3%	10.9%	19.8%
Stimulants	5.0%	1.2%	2.6%	7.5%
Sedatives	9.3%	1.3%	6.7%	11.9%
Hallucinogens	4.0%	1.1%	1.9%	6.1%
Cocaine	2.1%	0.6%	0.9%	3.4%
Inhalants	6.7%	1.3%	4.2%	9.3%
Heroin	1.6%	0.5%	0.7%	2.5%

Table 6.12 Change in Past Month Drug Use, 1989 -1997 Tooele Planning District				
Drug	1989	1994	1997	Change 1989 to1997
Smokeless Tobacco	--	7.7%	4.7%	-3.0%
Cigarettes	12.5%	18.2%	20.3%	7.8%
Alcohol	32.9%	29.3%	28.2%	-4.7%
Marijuana	8.3%	12.5%	15.4%	7.1%
Amphetamines	5.4%	5.9%	5.0%	-0.4%
Sedatives	3.6%	4.0%	9.3%	5.7%
Hallucinogens	2.4%	6.9%	4.0%	1.6%
Cocaine	2.7%	2.5%	2.1%	-0.6%
Inhalants	4.4%	6.8%	6.7%	2.3%

Heroin	0.4%	1.6%	1.6%	1.2%
Sample Size	701	692	697	

WASATCH

Wasatch Planning District is significantly lower than the average for cigarettes and marijuana. Changes since 1989 have been small, although there has been a significant decrease in cigarette use since 1994 (See Tables 6.13 & 6.14).

Table 6.13 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Wasatch Planning District,1997				
Drug	*Percent Using*	*Standard Error*	*Lower Confidence Interval*	*Upper Confidence Interval*
Smokeless Tobacco	6.7%	2.4%	2.1%	11.4%
Cigarettes	8.5%	2.2%	4.1%	12.9%
Alcohol	16.8%	3.6%	9.8%	23.8%
Marijuana	5.0%	1.6%	1.8%	8.1%
Stimulants	1.0%	0.6%	0.0%	2.2%
Sedatives	5.0%	1.4%	2.2%	7.7%
Hallucinogens	1.5%	1.0%	0.0%	3.5%
Cocaine	1.7%	0.9%	0.0%	3.3%
Inhalants	4.2%	1.6%	1.0%	7.4%
Heroin	0.2%	0.2%	0.0%	0.6%

Table 6.14 Change in Past Month Drug Use, 1989 -1997 Wasatch Planning District				
Drug	*1989*	*1994*	*1997*	*Change 1989 to1997*
Smokeless Tobacco	--	7.5%	6.7%	-0.8%
Cigarettes	8.4%	13.4%	8.5%	0.1%
Alcohol	19.3%	16.9	16.8%	-2.5%
Marijuana	6.1%	6.4%	5.0%	-1.1%
Amphetamines	3.6%	6.4%	1.0%	-2.6%
Sedatives	1.9%	3.0%	5.0%	3.1%
Hallucinogens	2.5%	2.4%	1.5%	-1.0%
Cocaine	2.2%	1.5%	1.7%	-0.5%
Inhalants	4.5%	4.3%	4.2%	-0.3%
Heroin	0.8%	0.8%	0.2%	-0.6%

Sample Size	358	531	326	

UTAH

Utah Planning District has low usage rates for cigarettes, alcohol, marijuana, stimulants, hallucinogens, cocaine, and inhalants. From 1989 to 1997, the proportion using alcohol and amphetamines decreased significantly (See Table 6.15 & 6.16).

Table 6.15
Percent of 7-12 Grade Students Who Used Drugs During Past Month:
Utah Planning District,1997

Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless tobacco	2.5%	0.8%	1.0%	4.1%
Cigarettes	8.3%	1.8%	4.7%	11.8%
Alcohol	10.7%	1.9%	6.9%	14.4%
Marijuana	4.5%	0.9%	2.6%	6.4%
Stimulants	1.1%	0.3%	0.5%	1.6%
Sedatives	4.3%	0.6%	3.2%	5.4%
Hallucinogens	1.2%	0.3%	0.5%	1.8%
Cocaine	0.6%	0.2%	0.2%	1.0%
Inhalants	3.1%	0.5%	2.1%	4.1%
Heroin	0.2%	0.1%	0.0%	0.5%

Table 6.16
Change in Past Month Drug Use, 1989 -1997
Utah Planning District

Drug	1989	1994	1997	Change 1989 to1997
Smokeless Tobacco	--	4.1%	2.5%	-1.6%
Cigarettes	9.1%	8.5%	8.3%	-0.8%
Alcohol	16.1%	11.3	10.7%	-5.4%
Marijuana	3.9%	5.3%	4.5%	0.6%
Amphetamines	4.6%	3.7%	1.1%	-3.5%
Sedatives	3.8%	2.9%	4.3%	0.5%
Hallucinogens	1.9%	2.1%	1.2%	-0.7%
Cocaine	1.2%	1.1%	0.6%	-0.6%
Inhalants	4.8%	4.4%	3.1%	-1.7%

Heroin	0.6%	0.6%	0.2%	-0.4%
Sample Size	1524	2656	1344	

SUMMIT

The prevalence of alcohol use is significantly higher in Summit than in Utah as a whole (30.3% compared to 18.8%). From 1994 to 1997, smokeless tobacco use decreased somewhat while alcohol use increased somewhat.

Table 6.17 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Summit Planning District,1997				
Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless Tobacco	5.3%	1.2%	2.9%	7.6%
Cigarettes	16.5%	2.9%	10.7%	22.2%
Alcohol	30.3%	4.1%	22.3%	38.4%
Marijuana	10.7%	2.7%	5.3%	16.0%
Stimulants	2.1%	0.7%	0.7%	3.4%
Sedatives	5.4%	1.3%	2.9%	8.0%
Hallucinogens	4.5%	1.4%	1.7%	7.3%
Cocaine	1.7%	0.8%	0.1%	3.3%
Inhalants	5.5%	2.0%	1.6%	9.4%
Heroin	1.2%	0.6%	0.0%	2.3%

Table 6.18 Change in Past Month Drug Use, 1989 -1997 Summit Planning District				
Drug	1989	1994	1997	Change 1989 to1997
Smokeless Tobacco	--	9.8%	5.3%	-4.5%
Cigarettes	14.1%	12.5%	16.5%	2.4%
Alcohol	35.8%	23.8%	30.3%	-5.5%
Marijuana	9.5%	10.5%	10.7%	1.2%
Amphetamines	3.7%	5.1%	2.1%	-1.6%
Sedatives	3.2%	3.4%	5.4%	2.2%

Hallucinogens	3.0%	5.5%	4.5%	1.5%
Cocaine	1.6%	2.8%	1.7%	0.1%
Inhalants	3.2%	6.4%	5.5%	2.3%
Heroin	0.4%	1.1%	1.2%	0.8%
Sample Size	921	749	445	

CENTRAL

Although the use of smokeless tobacco has decreased since 1994, its prevalence remains significantly higher in the Central Planning District than in the state. Also, there have been significant increases in cigarette and sedative use (See Tables 6.19 & 6.20).

Table 6.19 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Central Planning District,1997				
Drug	*Percent Using*	*Standard Error*	*Lower Confidence Interval*	*Upper Confidence Interval*
Smokeless Tobacco	8.0%	1.3%	5.5%	10.6%
Cigarettes	16.5%	2.3%	11.9%	21.1%
Alcohol	18.9%	2.4%	14.2%	23.5%
Marijuana	7.0%	1.7%	3.7%	10.4%
Stimulants	3.1%	1.2%	0.8%	5.4%
Sedatives	4.9%	1.1%	2.8%	7.1%
Hallucinogens	2.1%	0.6%	0.8%	3.3%
Cocaine	2.1%	0.8%	0.5%	3.7%
Inhalants	4.3%	0.9%	2.7%	6.0%
Heroin	0.6%	0.3%	0.1%	1.1%

Table 6.20 Change in Past Month Drug Use, 1989 -1997 Central Planning District				
Drug	*1989*	*1994*	*1997*	*Change 1989 to1997*
Smokeless Tobacco	--	10.3%	8.0%	-2.3%
Cigarettes	8.5%	18.5%	16.5%	8.0%
Alcohol	15.9%	21.9	18.9%	3.0%
Marijuana	4.0%	8.3%	7.0%	3.0%
Amphetamines	2.9%	7.5%	3.1%	0.2%
Sedatives	2.2%	4.8%	4.9%	2.7%
Hallucinogens	0.6%	3.9%	2.1%	1.5%

Cocaine	0.8%	3.0%	2.1%	1.3%
Inhalants	3.5%	6.0%	4.3%	0.8%
Heroin	0.3%	1.1%	0.6%	0.3%
Sample Size	3512	764	966	

SOUTHWEST

The Southwest Planning District (Beaver, Garfield, Iron, Kane, and Washington counties) has usage rates similar to state averages. Since 1989 there have been significant increases in the use of marijuana and sedatives, and significant decreases in the use of smokeless tobacco and amphetamines (See Tables 6.21 & 6.22).

Table 6.21 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Southwest Planning District,1997				
Drug	**Percent Using**	**Standard Error**	**Lower Confidence Interval**	**Upper Confidence Interval**
Smokeless Tobacco	3.8%	0.7%	2.4%	5.2%
Cigarettes	12.9%	1.5%	10.1%	15.8%
Alcohol	18.5%	2.0%	14.6%	22.4%
Marijuana	9.2%	1.2%	6.9%	11.5%
Stimulants	1.3%	0.4%	0.6%	2.1%
Sedatives	5.0%	0.7%	3.5%	6.4%
Hallucinogens	2.4%	0.5%	1.4%	3.4%
Cocaine	0.9%	0.3%	0.3%	1.5%
Inhalants	4.2%	0.7%	2.9%	5.5%
Heroin	0.7%	0.2%	0.2%	1.2%

Table 6.22 Change in Past Month Drug Use, 1989 -1997 Southwest Planning District				
Drug	**1989**	**1994**	**1997**	**Change 1989 to1997**
Smokeless Tobacco	--	7.5%	3.8%	-3.7%
Cigarettes	10.5%	14.3%	12.9%	2.4%
Alcohol	18.2%	18.7%	18.5%	0.3%
Marijuana	4.7%	7.8%	9.2%	4.5%

Amphetamines	2.8%	5.7%	1.3%	-1.5%
Sedatives	2.2%	4.0%	5.0%	2.8%
Hallucinogens	1.4%	2.7%	2.4%	1.0%
Cocaine	1.6%	2.5%	0.9%	-0.7%
Inhalants	4.9%	5.8%	4.2%	-0.7%
Heroin	0.6%	1.5%	0.7%	0.1%
Sample Size	2584	2478	966	

UINTAH

The Uintah Planning District (Daggett, Uintah, and Duchesne counties) is similar to Utah as a whole. Changes during the past decade have been relatively small, although cigarette use has increased somewhat (See Tables 6.23 & 6.24).

Table 6.23
Percent of 7-12 Grade Students Who Used Drugs During Past Month:
Uintah Planning District,1997

Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless Tobacco	6.9%	1.9%	3.3%	10.6%
Cigarettes	16.3%	4.0%	8.4%	24.2%
Alcohol	20.7%	3.9%	13.1%	28.3%
Marijuana	8.6%	3.2%	2.4%	14.9%
Stimulants	2.5%	1.2%	0.2%	4.9%
Sedatives	6.3%	1.6%	3.1%	9.5%
Hallucinogens	1.7%	0.9%	0.1%	3.4%
Cocaine	2.1%	0.9%	0.4%	3.7%
Inhalants	5.7%	1.9%	2.0%	9.4%
Heroin	1.1%	0.6%	0.0%	2.3%

Table 6.24
Change in Past Month Drug Use, 1989 -1997
Uintah Planning District

Drug	1989	1994	1997	Change 1989 to1997
Smokeless Tobacco	--	10.8%	6.9%	-3.9%
Cigarettes	12.2%	18.3%	16.3%	4.1%
Alcohol	24.1%	23.5%	20.7%	-3.4%
Marijuana	7.1%	6.1%	8.6%	1.5%

Amphetamines	4.5%	5.0%	2.5%	-2.0%
Sedatives	3.0%	3.0%	6.3%	3.3%
Hallucinogens	1.3%	2.5%	1.7%	0.4%
Cocaine	1.5%	1.6%	2.1%	0.6%
Inhalants	6.3%	4.5%	5.7%	-0.6%
Heroin	0.6%	0.7%	1.1%	0.5%
Sample Size	1187	820	287	

FOUR CORNERS

The Four Corners Planning District (Carbon, Emery, and Grand counties) is higher than the state average for alcohol and smokeless tobacco. There has been a large increase in cigarette use and modest increases in the use of marijuana and sedatives (See Tables 6.25 & 6.26).

Table 6.25 Percent of 7-12 Grade Students Who Used Drugs During Past Month: Four Corners Planning District,1997				
Drug	**Percent Using**	**Standard Error**	**Lower Confidence Interval**	**Upper Confidence Interval**
Smokeless Tobacco	8.2%	1.8%	4.7%	11.7%
Cigarettes	21.4%	2.7%	16.2%	26.7%
Alcohol	30.7%	3.4%	24.0%	37.4%
Marijuana	11.3%	1.8%	7.8%	14.9%
Stimulants	3.5%	0.9%	1.7%	5.3%
Sedatives	7.8%	1.3%	5.3%	10.3%
Hallucinogens	3.9%	0.9%	2.1%	5.8%
Cocaine	2.7%	0.9%	1.0%	4.4%
Inhalants	5.6%	1.1%	3.4%	7.7%
Heroin	1.5%	0.6%	0.3%	2.7%

Table 6.26 Change in Past Month Drug Use, 1989 -1997 Four Corners Planning District				
Drug	**1989**	**1994**	**1997**	**Change 1989 to1997**

Smokeless Tobacco	--	7.5%	8.2%	0.7%
Cigarettes	12.1%	17.2%	21.4%	9.3%
Alcohol	33.5%	31.1%	30.7%	-2.8%
Marijuana	6.4%	12.2%	11.3%	4.9%
Amphetamines	4.8%	6.7%	3.5%	-1.3%
Sedatives	3.0%	5.9%	7.8%	4.8%
Hallucinogens	1.3%	3.7%	3.9%	2.6%
Cocaine	2.3%	2.6%	2.7%	0.4%
Inhalants	5.4%	10.1%	5.6%	0.2%
Heroin	0.6%	2.0%	1.5%	0.9%
Sample Size	1792	505	644	

SAN JUAN

Compared to Utah as a whole, a higher proportion of San Juan students use smokeless tobacco and fewer students use hallucinogens. There have been significant increases in cigarette use and decreases in the use of hallucinogens (See Tables 6.27 & 6.28).

Table 6.27 Percent of 7-12 Grade Students Who Used Drugs During Past Month: San Juan Planning District,1997				
Drug	Percent Using	Standard Error	Lower Confidence Interval	Upper Confidence Interval
Smokeless Tobacco	8.1%	1.5%	5.1%	11.0%
Cigarettes	22.2%	3.4%	15.5%	28.9%
Alcohol	17.1%	3.4%	10.4%	23.8%
Marijuana	10.1%	2.5%	5.2%	15.0%
Stimulants	1.7%	0.6%	0.5%	2.9%
Sedatives	4.3%	1.0%	2.3%	6.4%
Hallucinogens	1.1%	0.5%	0.1%	2.0%
Cocaine	1.3%	0.5%	0.2%	2.4%
Inhalants	3.9%	1.7%	0.5%	7.3%
Heroin	0.8%	0.4%	0.0%	1.6%

Table 6.28
Change in Past Month Drug Use, 1989 -1997
San Juan Planning District

Drug	1989	1994	1997	Change 1989 to1997
Smokeless Tobacco		11.6%	8.1%	-3.5%
Cigarettes	12.4%	19.2%	22.2%	9.8%
Alcohol	15.8%	18.4%	17.1%	1.3%
Marijuana	6.8%	9.5%	10.1%	3.3%
Amphetamines	3.0%	5.3%	1.7%	-1.3%
Sedatives	2.5%	4.6%	4.3%	1.8%
Hallucinogens	12.2%	5.3%	1.1%	-11.1%
Cocaine	2.4%	1.8%	1.3%	-1.1%
Inhalants	5.2%	5.0%	3.9%	-1.3%
Heroin	1.3%	1.6%	0.8%	-0.5%
Sample Size	908	387	368	

CHAPTER 7

DRUG DEPENDENCE AND ABUSE

One of the major purposes of this study was to assess the extent to which adolescents in Utah are problem users of various drugs and may be in need of treatment. "Need for treatment" is defined as being in a state of substance abuse or dependence which requires help to stop or cut down on substance use, prevent relapse, or recover from the effects of use. The criteria for drug dependence and abuse are taken from the American Psychiatric Association's *Diagnostic and Statistical Measures, 3rd revised edition* (DSM-III-R).

The Center for Substance Abuse Treatment (CSAT) and the National Technical Center (NTC) define treatment need using the DSM-III-R criteria. A diagnostic Interview Schedule (DIS) was developed by Robins et al. (1981) to measure dependence and abuse using the DSM-III-R criteria. The DIS was designed as a clinical interview schedule for adults. We took items from the DIS and modified them for use in a questionnaire for adolescents. After extensive development, review, modification, and testing, we judged the questionnaire to be acceptable at measuring the dependence and abuse criteria of DSM-III-R. A copy of the questionnaire is in Appendix 1.

The DSM-III-R criteria are accepted by the American Psychological Association, the American Society of Addiction Medicine, and many health maintenance organizations, managed care regulators, and addiction researchers. The DSM-III-R provides two classifications for substance use disorders, substance dependence and substance abuse. A diagnosis of *substance dependence* is made if a person exhibits at least three of nine

possible symptoms and if some of the symptoms have persisted for at least one month or have occurred repeatedly over a longer period of time. The nine symptoms include the following:

1. Taking a substance in larger amounts or for a longer period than intended.

2. Persistent desire to quit substance use or unsuccessful efforts to control substance use.

3. Spending much time getting a drug, using a drug, or getting over the effects of a drug.

4. Frequent intoxication or withdrawal symptoms when fulfilling role obligations, or using a drug when it is physically hazardous.

5. Reducing or giving up activities because of drug use.

6. Continued drug use despite knowledge of a problem that is caused or exacerbated by drug use.

7. Marked tolerance.

8. Withdrawal symptoms.

9. Drug use to relieve or avoid withdrawal symptoms.

According to the DSM-III-R criteria, those with a diagnosis of dependence may be classified as mild, moderate, and severe. A person with mild dependence has three or four symptoms of dependence but does not exhibit any symptoms of functional impairment. A classification of moderate dependence is made if one has five or six symptoms of dependence or if one has three or four symptoms of dependence and at least one symptom of functional impairment. One with seven or more symptoms of dependence is

considered to have a severe dependence.

To receive a diagnosis of *substance abuse*, one must meet three criteria:

1. Never have met the criteria for substance dependence.

2. Admit a maladaptive or hazardous pattern of substance use.

3. Have symptoms that have lasted at least a month or have occurred repeatedly over a longer period of time.

The maladaptive pattern includes continued use despite social, occupational, psychological, or physical problems caused by or exacerbated by use, or recurrent use when it is physically hazardous.

Appendix 4 lists the symptoms, the questionnaire numbers used to measure each symptom, and the scoring systems for dependence, severity of dependence, and abuse. In addition, Appendix 4 includes the computer syntax for the Statistical Package of the Social Sciences (SPSS) which we used to code substance dependence and substance abuse. This will allow any reader to identify the specific questionnaire items, scoring system, and computer algorithms which we used. We now report the findings regarding the dependence and abuse of the various drugs.

ALCOHOL

According to the DSM-III-R criteria, 5.8 percent of Utah students in grades 7-12 were classified as dependent on alcohol. There were no significant differences among the thirteen geographical planning districts except the Utah (County) planning district had a significantly smaller percentage who were classified as alcohol dependent. Given that the total 1997 population of Utah students in grades 7-12 was 222,116, about 12,846 of those

students would be classified as alcohol dependent. There was not a significant difference between the females and males in the proportion with alcohol dependence. As expected, dependence increased as grade level increased, from 2.2 percent among seventh graders to 10.0 percent among twelfth graders (See Table 7.1).

Table 7.1

Alcohol Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Alcohol: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	5.8	4.5	7.0
Females	5.6	4.1	7.0
Males	6.0	4.4	7.5
Grade 7	2.2	0.7	3.7
Grade 8	3.3	1.6	5.1
Grade 9	5.7	3.2	8.1
Grade 10	6.7	4.5	9.0
Grade 11	8.3	5.1	11.5
Grade 12	10.0	6.5	13.5

A summary of the data on severity of alcohol dependence is shown in Table 7.2. It was rare for a student to be classified with a mild dependence on alcohol. Among the students with dependence on alcohol, almost all (95%) had a moderate or severe dependence. Thus, among those who were classified as alcohol dependent, 95 percent had at least five symptoms of dependence or at least three symptoms and one functional impairment. If this sample was representative of the 1997 population of 222,116 Utah students in grades 7-12, then it is estimated that there were more than 12,000 Utah

students with alcohol dependence and almost 4,000 with severe dependence. Among seniors, one student in ten was dependent on alcohol.

Table 7.2

Severity of Alcohol Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Alcohol Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.3	15	624
Moderate	3.7	200	8314
Severe	1.8	94	3908
Total Dependent	5.8	309	12,846
Sample & Population Sizes	100.0	5343	222,116

As noted above, a set of DSM-III-R criteria have been established to determine abuse. To be classified as having a pattern of substance abuse, one must admit a maladaptive or hazardous pattern of substance use and have symptoms that have lasted at least a month or have occurred repeatedly over a longer period of time. According to these criteria, abuse of alcohol is rare among Utah students in grades 7-12. In the sample of 5343 students who completed the questionnaire on dependency and abuse, only two students were classified as having alcohol abuse symptoms, which was less than .04 of one percent.

Two specific questions on alcohol helped validate the DSM-III-R measurements of dependence. First, each of the students was asked if he or she ever had a problem with, felt addicted to, or been hooked on alcohol. A total of 5.6 percent of the students responded "yes" to this question. When asked if their use of alcohol had caused them to

miss school, be suspended from school, or do poorly on school work, 6.1 percent of the students responded "yes." These percentages are consistent with the DSM-III-R measure that 5.8 percent of the students may be dependent on alcohol.

MARIJUANA

According to the DSM-III-R criteria, 4.9 percent of Utah students in grades 7-12 were classified as dependent on marijuana, which would be 10,884 of the 222,116 students. There were no significant differences among the planning districts except the Utah (County) planning district had a significantly smaller percentage who were classified as marijuana dependent. The proportion of females with marijuana dependence was not significantly different from the proportion of males with marijuana dependence. As expected, dependence tended to increase as grade level increased, although a higher proportion of ninth graders than tenth or eleventh graders were dependent on marijuana. (See Table 7.3).

Table 7.3
Marijuana Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Marijuana: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	4.9	3.9	5.9
Females	4.2	2.9	5.4
Males	5.8	4.4	7.2
Grade 7	1.6	0.2	3.0
Grade 8	3.9	2.3	5.5
Grade 9	6.5	3.8	9.1
Grade 10	5.0	3.5	6.5
Grade 11	5.9	3.1	8.7

Grade 12	7.7	4.3	11.1

Table 7.4 shows the severity of marijuana dependence according to the DSM-III-R criteria. The reader is referred again to Appendix 4 for a detailed examination of the criteria and the questions used to make the classification. Among the students who were classified as dependent on marijuana, it was rare for the dependence to be classified as mild. Almost all with marijuana dependence had a moderate or severe dependence. Among those who were classified as marijuana dependent, 97 percent had at least five symptoms of dependence or at least three symptoms and one functional impairment. According to these data, more than 3,000 of Utah students in grades 7-12 had a severe dependence on marijuana. Among seniors, 7.7 percent were dependent on marijuana.

Table 7.4

Severity of Marijuana Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Marijuana Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.14	7	311
Moderate	3.39	181	7,530
Severe	1.37	73	3,043
Total Dependent	4.90	261	10,884
Sample & Population Sizes	100.0	5343	222,116

As with alcohol, marijuana abuse according to the DSM-III-R criteria was extremely rare. Only four students in the sample met the criteria of marijuana abuse, which was less

than .08 of one percent of the sample. This would mean that about 178 of Utah students would fit the DSM-III-R criteria of marijuana abuse.

AMPHETAMINES

According to the DSM-III-R criteria, 1.5 percent of Utah students in grades 7-12 were classified as dependent on amphetamines, which would be 3,369 of the 222,116 students. There were no significant differences among the planning districts except that there was no student in the sample from Summit Planning District who was classified as dependent on amphetamines.   The proportion of females with dependence on amphetamines was not significantly different from the proportion of males with amphetamine dependence. As expected, there was a general tendency for dependence to increase as grade level increased (See Table 7.5).

Table 7.5
Amphetamine Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Amphetamine: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	1.5	1.0	2.1
Females	1.2	0.5	1.8
Males	1.9	1.1	2.7
Grade 7	0.4	0.0	0.9
Grade 8	1.2	0.4	1.9
Grade 9	0.9	0.0	1.8
Grade 10	1.5	0.6	2.3
Grade 11	1.3	0.5	2.2
Grade 12	4.4	1.7	7.1

Table 7.6 shows the severity of amphetamine dependence according to the DSM-III-R criteria. Among the students who were classified as dependent on amphetamines, only six percent were classified as mild, 56 percent were moderate, and 38 percent were severe.   Seventy-five of the 80 who were dependent on amphetamines were classified as moderate or severe in their dependency. Projections from the sample indicate that there would be more than 3,000 Utah students in grades 7-12 with a moderate or severe dependence on amphetamines.   Among seniors, 4.4 percent were dependent on amphetamines. Abuse of amphetamines was rare, with only a rate of .028 of one percent. This produced an estimate of only 62 Utah students with abuse of amphetamines according to the DSM-III-R criteria.

Table 7.6

Severity of Amphetamine Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Amphetamine Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.10	5	222
Moderate	0.85	45	1,888
Severe	0.57	30	1,266
Total Dependent	1.52	80	3,376
Sample & Population Sizes	100.0	5343	222,116

COCAINE

According to the DSM-III-R criteria, 1.4 percent of Utah students in grades 7-12 were classified as dependent on cocaine, which would be 3,110 of the 222,116 students. There were no significant differences among the planning districts in dependence on

cocaine. There was no difference between females and males in cocaine dependence (See Table 7.7).

Table 7.7
Cocaine Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Cocaine: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	1.4	0.9	1.9
Females	1.3	0.6	1.9
Males	1.6	0.8	2.3
Grade 7	0.4	0.0	0.9
Grade 8	1.1	0.3	2.0
Grade 9	1.3	0.0	2.6
Grade 10	1.1	0.4	1.7
Grade 11	1.3	0.5	2.2
Grade 12	3.4	0.8	6.0

Table 7.8 shows the severity of cocaine dependence according to the DSM-III-R criteria. Among the students who were classified as dependent on cocaine, only one percent were classified as mild, 59 percent were moderate, and 40 percent were severe. Seventy-four of the 75 students who were dependent on cocaine were classified as moderate or severe in their dependency. Projections from the sample indicate that there would be more than 3,000 Utah students in grades 7-12 with a moderate or severe dependence on cocaine. Among seniors, 3.4 percent were dependent on cocaine. Abuse of cocaine was rare; only one of the 5343 students in our sample was classified with

cocaine abuse according to DSM-III-R criteria. This produced an estimate of only 42 Utah

students with abuse of cocaine according to the DSM-III-R criteria.

Table 7.8

Severity of Cocaine Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Cocaine Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.02	1	44
Moderate	0.82	44	1,821
Severe	0.56	30	1,244
Total Dependent	1.40	75	3,109
Sample & Population Sizes	100.0	5343	222,116

HALLUCINOGENS

According to the DSM-III-R criteria, 1.27 percent of Utah students in grades 7-12

were classified as dependent on hallucinogens, which would be 2,814 of the 222,116

students.   There were no significant differences among the planning districts in

dependence on hallucinogens.   The proportion of females with dependence on

hallucinogens was not significantly different from the proportion of males with hallucinogen

dependence. There was a general tendency for dependence to increase as grade level

increased, with a noticeable increase among seniors (See Table 7.9).

Table 7.9
Hallucinogen Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Hallucinogens: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	1.27	0.83	1.71
Females	1.10	0.46	1.64
Males	1.53	0.85	2.20
Grade 7	0.75	0.0	1.6
Grade 8	1.03	0.3	1.7
Grade 9	0.84	0.0	1.7
Grade 10	1.11	0.3	1.9
Grade 11	1.16	0.4	1.9
Grade 12	2.64	0.3	4.9

Table 7.10 shows the severity of hallucinogen dependence according to the DSM-III-R criteria. Among the students who were classified as dependent on hallucinogens, 5.4 percent were classified as mild, 61.3 percent were moderate, and 33.3 percent were severe. Ninety-five percent of the students who were dependent on hallucinogens were classified as moderate or severe in their dependence. Projections from the sample indicate that there would be more than 2,800 Utah students in grades 7-12 with dependence on hallucinogens, and almost all of these would be classified as moderate or severe in their dependence. Among seniors, 2.6 percent were dependent on hallucinogens. As with the other substances, abuse of hallucinogens was rare, a rate of

only .047 of one percent according to DSM-III-R criteria. This produced an estimate of

only 104 Utah students with abuse of hallucinogens according to the DSM-III-R criteria.

Table 7.10

Severity of Hallucinogen Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Hallucinogen Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.07	4	155
Moderate	0.77	41	1,710
Severe	0.43	23	955
Total Dependent	1.27	68	2,820
Sample & Population Sizes	100.0	5343	222,116

HEROIN

According to the DSM-III-R criteria, one percent of Utah students in grades 7-12

were classified as dependent on heroin, which would be 2,154 of the 222,116 students.

There were no significant differences among the planning districts in dependence on

heroin. The proportion of females with dependence on heroin was not significantly

different from the proportion of males with heroin dependence. The rate of heroin

dependence for females was .7 of one percent while it was 1.3 percent among males.

There was a noticeable increase in heroin use between grades 11 and 12 (See Table

7.11).

Table 7.11
Heroin Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Dependent on Heroin: Utah, 1997

Group	Percent Dependent	95% Confidence Intervals	
		Lower	Upper
Total State	0.97	0.54	1.40
Females	0.69	0.18	1.19
Males	1.30	0.61	1.98
Grade 7	0.33	0.0	.84
Grade 8	0.93	.22	1.65
Grade 9	0.68	0.0	1.47
Grade 10	0.93	0.26	1.61
Grade 11	0.61	0.03	1.19
Grade 12	2.39	0.27	4.51

Table 7.12 shows the severity of heroin dependence according to the DSM-III-R

criteria. Among the students who were classified as dependent on heroin, none were

classified as mild, 61 percent were moderate, and 39 percent were severe. Projections

from the sample indicate that there would be 1,314 Utah students in grades 7-12 with

moderate dependence on heroin and about 840 students with severe dependence on heroin. Among seniors, 2.4 percent were dependent on heroin. None of the students in our sample were classified with heroin abuse according to the DSM-III-R criteria.

Table 7.12

Severity of Heroin Dependence
Percent of Utah Students in Grades 7-12 Who Were
Classified as Mild, Moderate, or Severe in
Heroin Dependence: Utah, 1997

Dependence Classification	Percent	Sample Number	Population Number
Mild	0.00	0	0
Moderate	0.59	32	1,310
Severe	0.38	20	844
Total Dependent	0.97	52	2,154
Sample & Population Sizes	100.0	5343	222,116

NEED FOR TREATMENT

To supplement the DSM-III-R criteria, we now report student responses to four questions regarding addiction and treatment. First, 8.5 percent of the students said they felt addicted to or hooked on at least one of the six substances (alcohol, marijuana,

cocaine, hallucinogens, heroin, or stimulants). Second, 3.1 percent said they took initial

steps to find out about and obtain treatment. Third, 2.7 percent said they had received

some type of treatment for drinking or other drug use. Finally, 2.7 percent said that during

the past 12 months they needed treatment for alcohol or drug abuse. These questions

provide the student perceptions of their addiction and need for treatment. A list of these

questions along with 95 percent confidence intervals is given in Table 7.13.

Table 7.13
Perceived Need for Treatment
Percent of Utah Students in Grades 7-12 Who
Perceived a Need for Treatment Utah, 1997

Question	Percent Yes	95% Confidence Intervals	
		Lower Bound	Upper Bound
Have you ever had a problem with, felt addicted to, or been hooked on alcohol, marijuana, cocaine, hallucinogens, heroin, or stimulants?	8.5%	6.8%	10.1%
During the past 12 months, did you take any steps to obtain treatment, such as asking friends what's available, talking to a school counselor, calling a detox or other treatment center, getting a referral, or visiting a treatment facility?	3.1%	2.1%	4.0%
Have you ever received any treatment for drinking or other drug use–such as from a hospital, treatment center, self-help group, counselor, doctor, or other professional?	2.7%	1.9%	3.6%
During the past 12 months, did you need any treatment for alcohol or drug use?	2.7%	2.0%	3.3%

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